



MERGED  
PODCAST

WHERE THE

# SEARCH FOR DARK MATTER & UAP

MEET

MATTHEW SZYDAGIS



1  
00:00:00,083 --> 00:00:01,583  
You asked a really good question about,

2  
00:00:01,583 --> 00:00:03,750  
well, what expertise did I

3  
00:00:03,750 --> 00:00:06,916  
bring to UAP? And the expertise

4  
00:00:06,916 --> 00:00:08,666  
that I bring is radiation detection,

5  
00:00:08,666 --> 00:00:10,750  
because dark matter detection

6  
00:00:10,750 --> 00:00:12,791  
is just one step away from just

7  
00:00:12,791 --> 00:00:14,583  
detection of any particles in general.

8  
00:00:14,583 --> 00:00:16,208  
Because when you're looking for a new

9  
00:00:16,208 --> 00:00:17,458  
particle, and you need to

10  
00:00:17,458 --> 00:00:19,458  
know what particles we already

11  
00:00:19,458 --> 00:00:21,000  
understand, you cannot claim to discover

12  
00:00:21,000 --> 00:00:21,666  
something new unless

13  
00:00:21,666 --> 00:00:23,666

you've addressed all the existing

14

00:00:23,666 --> 00:00:24,833

possibilities. And the reason

15

00:00:24,833 --> 00:00:27,125

why that's connected to UAP is

16

00:00:27,583 --> 00:00:31,125

because of all of the claims of

17

00:00:31,125 --> 00:00:33,375

radiation. There's plenty of historical

18

00:00:33,375 --> 00:00:36,125

examples of claims of UAP

19

00:00:36,125 --> 00:00:38,500

producing radiation. And to me, that's

20

00:00:38,500 --> 00:00:40,000

really interesting because

21

00:00:40,000 --> 00:00:41,625

you can fake or hoax a video,

22

00:00:41,625 --> 00:00:44,500

it's really hard to fake a radiation

23

00:00:44,500 --> 00:00:46,250

signal. I'm not saying it's impossible,

24

00:00:46,250 --> 00:00:47,291

but like it's one thing

25

00:00:47,291 --> 00:00:50,541

to use CGI and fake people with a UFO

26

00:00:50,541 --> 00:00:52,750

picture, but radiation

27

00:00:52,750 --> 00:00:54,416

screams to me real phenomenon, very

28

00:00:54,916 --> 00:00:56,625

difficult to hoax. And again, that

29

00:00:56,625 --> 00:00:58,125

doesn't prove it's alien spacecraft, but

30

00:00:58,125 --> 00:00:59,125

it proves it's something

31

00:00:59,125 --> 00:01:02,791

weird and interesting.

32

00:01:02,791 --> 00:01:07,791

Caius Institute is a pioneer in the field

33

00:01:07,791 --> 00:01:09,375

of AI driven comparative

34

00:01:09,375 --> 00:01:11,000

and qualitative analysis,

35

00:01:11,000 --> 00:01:13,166

and was established with the primary goal

36

00:01:13,166 --> 00:01:14,500

of uncovering the hidden

37

00:01:14,500 --> 00:01:16,125

value left behind in complex

38

00:01:16,125 --> 00:01:18,541

data sets. Through a combination of human

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00:01:18,541 --> 00:01:20,291

expertise and cutting edge technologies,

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00:01:20,625 --> 00:01:22,583

Caius has developed a range of services

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00:01:22,583 --> 00:01:24,000

that cater to various

42

00:01:24,000 --> 00:01:25,458

industries. They are providing

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00:01:25,458 --> 00:01:27,041

valuable insights that can help drive

44

00:01:27,041 --> 00:01:28,458

growth, formulate

45

00:01:28,458 --> 00:01:30,458

competitive strategy, and to identify

46

00:01:30,458 --> 00:01:32,750

key patterns in targeted demographics.

47

00:01:32,750 --> 00:01:33,666

Head to their site to

48

00:01:33,666 --> 00:01:35,708

learn more. Caius.Institute.

49

00:01:35,708 --> 00:01:40,083

That's C-O-E-U-S.Institute. Matt, thanks

50

00:01:40,083 --> 00:01:43,583

for joining me. You are

51

00:01:43,583 --> 00:01:44,791

an associate professor,

52

00:01:45,291 --> 00:01:49,291

and you primarily focus on detections of

53

00:01:49,291 --> 00:01:52,041

dark matter, weakly

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00:01:52,041 --> 00:01:54,458

interacting massive particles,

55

00:01:54,458 --> 00:01:57,458

another thing. You also are interested,

56

00:01:57,458 --> 00:02:00,166

or at least intrigued to some degree, by

57

00:02:00,166 --> 00:02:02,791

unidentified anomalous phenomenon. Both

58

00:02:02,791 --> 00:02:05,291

of those, I would say, are

59

00:02:05,291 --> 00:02:06,500

principles or theories that

60

00:02:08,416 --> 00:02:13,458

suffer from a lack of data that satisfies

61

00:02:13,458 --> 00:02:14,208

everyone else's say.

62

00:02:14,208 --> 00:02:15,000

Do you feel like there's

63

00:02:15,000 --> 00:02:16,625

a relation between the two as far as

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00:02:16,625 --> 00:02:17,708

you're interested in them,

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00:02:17,708 --> 00:02:20,291

as far as driving towards

66

00:02:20,291 --> 00:02:23,958

these conversations about things on the

67

00:02:23,958 --> 00:02:25,875

edge of our data sets, if you will, if

68

00:02:25,875 --> 00:02:27,833

not our understanding?

69

00:02:27,833 --> 00:02:29,333

Yeah, there is one major difference,

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00:02:29,333 --> 00:02:30,916

though, which is dark

71

00:02:30,916 --> 00:02:32,708

matter is accepted by most of the

72

00:02:33,208 --> 00:02:35,000

mainstream scientific community. That

73

00:02:35,000 --> 00:02:36,250

being said, there really

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00:02:36,250 --> 00:02:38,166

is a good analogy, actually,

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00:02:38,166 --> 00:02:39,625

because even though I just said dark

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00:02:39,625 --> 00:02:41,416

matter as well, accepted,

77

00:02:41,416 --> 00:02:43,250

that's really mostly within

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00:02:43,250 --> 00:02:45,333

astrophysics, cosmology, particle

79

00:02:45,333 --> 00:02:48,750

physics. I've encountered scientists in

80

00:02:48,750 --> 00:02:50,083

other fields, including

81

00:02:50,083 --> 00:02:52,833

in other fields of physics, who will

82

00:02:52,833 --> 00:02:55,375

laugh about dark matter and say, "Oh,

83

00:02:55,375 --> 00:02:56,166

there's no such thing."

84

00:02:56,458 --> 00:03:00,833

So actually, there is a remarkable amount

85

00:03:00,833 --> 00:03:02,333

of good analogies. So

86

00:03:02,333 --> 00:03:03,833

even though one is considered

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00:03:03,833 --> 00:03:05,583

accepted, if you talk to the right

88

00:03:05,583 --> 00:03:08,708

people, you do get laughed at for looking

89

00:03:08,708 --> 00:03:10,625

for dark matter as well.

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00:03:10,625 --> 00:03:11,916

Interesting. Well, let's talk a little

91

00:03:11,916 --> 00:03:14,000

bit about your academic and

92

00:03:14,000 --> 00:03:14,750

professional background. Could

93

00:03:14,750 --> 00:03:16,500

you tell us a little bit about your

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00:03:16,500 --> 00:03:17,166

studies and what you

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00:03:17,166 --> 00:03:18,666

do now professionally?

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00:03:18,666 --> 00:03:22,125

Sure. So I'll start with my alma mater,

97

00:03:22,125 --> 00:03:23,750

University of Chicago.

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00:03:23,750 --> 00:03:24,708

That's where I got everything,

99

00:03:25,125 --> 00:03:27,458

actually, got my bachelor's, master's,

100

00:03:27,458 --> 00:03:28,625

and PhD there. So I

101

00:03:28,625 --> 00:03:30,291

stuck around for a long time.

102

00:03:30,291 --> 00:03:32,666

Then I went to UC Davis in California for

103

00:03:32,666 --> 00:03:34,166

a few years. And after

104

00:03:34,166 --> 00:03:37,750

that, I was and have been,

105

00:03:37,750 --> 00:03:39,875

continue to this day to be a faculty

106

00:03:39,875 --> 00:03:42,208

member at the University at

107

00:03:42,208 --> 00:03:43,708

Albany, SUNY. So that's the

108

00:03:43,708 --> 00:03:46,583

State University of New York system. So

109

00:03:46,583 --> 00:03:48,333

that's sort of my background. I'm a

110

00:03:48,333 --> 00:03:49,458

professor of physics

111

00:03:50,083 --> 00:03:53,750

at SUNY Albany. And I've been there for

112

00:03:53,750 --> 00:03:56,000

over nine years now. And my

113

00:03:56,000 --> 00:03:57,541

main effort, as we just said,

114

00:03:57,541 --> 00:03:59,500

is really the search for dark matter.

115

00:03:59,500 --> 00:04:00,583

It's my research effort.

116

00:04:00,583 --> 00:04:02,666

But as a professor, I do,

117

00:04:02,666 --> 00:04:05,291

you know, I teach courses, and I have to

118

00:04:05,291 --> 00:04:06,375

sit on committees, you

119

00:04:06,375 --> 00:04:07,916

know, nobody likes that part.

120

00:04:07,916 --> 00:04:09,333

And there's research. So being a

121

00:04:09,333 --> 00:04:11,291

professor is kind of like a

122

00:04:11,291 --> 00:04:13,375

full-time job times three.

123

00:04:13,375 --> 00:04:16,583

So I often joke with people, I work 300%

124

00:04:16,583 --> 00:04:18,208

a time because each of

125

00:04:18,208 --> 00:04:19,291

those pillars of being

126

00:04:19,541 --> 00:04:22,166

a professor, research, teaching, service,

127

00:04:22,166 --> 00:04:24,625

all can take up all your time.

128

00:04:24,625 --> 00:04:26,416

Is your teaching focused

129

00:04:26,416 --> 00:04:28,916

on your research activities?

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00:04:28,916 --> 00:04:31,208

That's a good question. It's not. It's,

131

00:04:31,208 --> 00:04:33,375

that's a very common question that we,

132

00:04:33,375 --> 00:04:35,875

that professors often get. We teach

133

00:04:35,875 --> 00:04:36,833

whatever, whatever needs to

134

00:04:36,833 --> 00:04:39,000

be done. It can be physics,

135

00:04:39,000 --> 00:04:41,333

physics one for pre meds and those who

136

00:04:41,333 --> 00:04:43,833

hate physics. It can be a graduate course

137

00:04:44,375 --> 00:04:46,625

anywhere in between. We do sometimes get

138

00:04:46,625 --> 00:04:48,458

to, but it's very rare

139

00:04:48,458 --> 00:04:50,583

actually, we may get to teach an

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00:04:50,583 --> 00:04:53,041

elective advanced course in our, in our

141

00:04:53,041 --> 00:04:55,000

field. So I did a few years

142

00:04:55,000 --> 00:04:58,000

ago create a class that focuses

143

00:04:58,000 --> 00:04:59,458

not just on dark matter, because that's

144

00:04:59,458 --> 00:05:01,083

too specific for one

145

00:05:01,083 --> 00:05:03,291

semester, but sort of dark matter

146

00:05:03,291 --> 00:05:04,875

within the bigger picture of what's

147

00:05:04,875 --> 00:05:06,083

called astroparticle

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00:05:06,083 --> 00:05:07,666

physics. But I haven't taught that

149

00:05:07,666 --> 00:05:09,500

course in years, especially with the,

150

00:05:09,500 --> 00:05:11,125

given the pandemic and

151

00:05:11,125 --> 00:05:12,500

everything that electives weren't

152

00:05:13,041 --> 00:05:14,833

as high of a priority for teaching as

153

00:05:14,833 --> 00:05:16,208

like the main, the main

154

00:05:16,208 --> 00:05:17,916

focus of physics courses.

155

00:05:17,916 --> 00:05:19,500

Astroparticle physics?

156

00:05:19,500 --> 00:05:21,541

Yeah, that's the big picture name for my

157

00:05:21,541 --> 00:05:23,166

sort of where dark matter

158

00:05:23,166 --> 00:05:25,416

fits and sort of the field that,

159

00:05:25,416 --> 00:05:26,541

that I work in.

160

00:05:26,541 --> 00:05:28,791

So where, where is this, this state of

161

00:05:28,791 --> 00:05:30,291

the knowledge on, on

162

00:05:30,291 --> 00:05:31,916

that topic right now?

163

00:05:31,916 --> 00:05:34,166

So in terms of dark matter, I mean, so

164

00:05:34,166 --> 00:05:35,333

we, we, the current state

165

00:05:35,333 --> 00:05:37,791

is that we have mountains,

166

00:05:37,791 --> 00:05:39,708

mountains of evidence, but they're

167

00:05:39,708 --> 00:05:40,875

observational evidence. They're not what

168

00:05:40,875 --> 00:05:41,916

you would call direct

169

00:05:42,416 --> 00:05:45,416

evidence. So we have hints, really good

170

00:05:45,416 --> 00:05:47,041

hints. And they're very,

171

00:05:47,041 --> 00:05:48,750

very diverse. We've seen things

172

00:05:48,750 --> 00:05:51,291

like the velocities of stars orbiting

173

00:05:51,291 --> 00:05:52,500

centers of galaxies. That's

174

00:05:52,500 --> 00:05:54,583

the one of the biggest hints.

175

00:05:54,583 --> 00:05:56,250

Then there's another effect called

176

00:05:56,250 --> 00:05:57,500

gravitational lensing. That's

177

00:05:57,500 --> 00:05:59,333

where mass can distort light,

178

00:05:59,333 --> 00:06:01,875

you can then calculate the amount of mass

179

00:06:01,875 --> 00:06:03,041

that's doing the

180

00:06:03,041 --> 00:06:05,041

distortion. That's another clue that

181

00:06:05,041 --> 00:06:07,041

points towards there being dark matter

182

00:06:07,041 --> 00:06:08,416

more matter than we can

183

00:06:08,416 --> 00:06:09,916

see. And there's a whole host

184

00:06:10,208 --> 00:06:11,875

of other pieces of evidence. We've even

185

00:06:11,875 --> 00:06:13,041

found galaxies in the

186

00:06:13,041 --> 00:06:15,041

recent years that are either

187

00:06:15,041 --> 00:06:17,000

entirely dark matter or no dark matter at

188

00:06:17,000 --> 00:06:18,541

all. And that seems to

189

00:06:18,541 --> 00:06:20,458

imply that it really is stuff.

190

00:06:20,458 --> 00:06:21,916

It's some kind of stuff. And you can have

191

00:06:21,916 --> 00:06:22,500

more of that stuff

192

00:06:22,500 --> 00:06:24,000

and less of that stuff.

193

00:06:24,000 --> 00:06:25,958

So the current state of the art is that

194

00:06:25,958 --> 00:06:28,083

we have all these hints, and

195

00:06:28,083 --> 00:06:29,416

they all seem to be pointing

196

00:06:29,416 --> 00:06:31,750

towards something there. But we still

197

00:06:31,750 --> 00:06:35,000

don't have a solid grasp. We can't, we,

198

00:06:35,000 --> 00:06:35,916

we don't even have one

199

00:06:37,416 --> 00:06:39,750

theory that everyone can get behind for

200

00:06:39,750 --> 00:06:41,833

how much does one dark matter particle

201  
00:06:41,833 --> 00:06:42,666  
weigh. We don't even

202  
00:06:42,666 --> 00:06:44,750  
know that. It could be, it could take on

203  
00:06:44,750 --> 00:06:46,000  
any value we don't know.

204  
00:06:46,000 --> 00:06:47,208  
We have such a broad range

205  
00:06:47,208 --> 00:06:48,625  
of possibilities. So even though we have

206  
00:06:48,625 --> 00:06:50,041  
all this evidence from

207  
00:06:50,041 --> 00:06:51,750  
astronomy and cosmology,

208  
00:06:51,750 --> 00:06:53,625  
the current status is that we still

209  
00:06:53,625 --> 00:06:56,750  
haven't, from the particle

210  
00:06:56,750 --> 00:06:59,458  
physics angle, actually seen

211  
00:06:59,458 --> 00:07:02,208  
anything conclusive yet. So you guys, you

212  
00:07:02,208 --> 00:07:04,166  
can detect potential galaxies that are

213  
00:07:05,583 --> 00:07:07,041

actually completely made of this, but

214

00:07:07,041 --> 00:07:07,833

those are still not

215

00:07:07,833 --> 00:07:09,416

considered direct observations.

216

00:07:09,416 --> 00:07:10,875

That's a really good point. Some say

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00:07:10,875 --> 00:07:13,166

that's good enough. But for a particle

218

00:07:13,166 --> 00:07:13,625

physics, it's not good

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00:07:13,625 --> 00:07:15,000

enough, because we still don't know what

220

00:07:15,000 --> 00:07:16,083

that is. We just know there's

221

00:07:16,083 --> 00:07:18,333

some stuff there. But that's

222

00:07:18,333 --> 00:07:19,916

not, that doesn't count as direct

223

00:07:19,916 --> 00:07:21,583

detection. Let me give you an example.

224

00:07:21,583 --> 00:07:23,208

Let's say we didn't know

225

00:07:23,208 --> 00:07:26,500

protons existed, but we detected hydrogen

226

00:07:26,500 --> 00:07:27,875

gas, which is effectively

227

00:07:27,875 --> 00:07:29,458

just protons and electrons.

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00:07:29,458 --> 00:07:31,541

It's not the same thing. Because even if

229

00:07:31,541 --> 00:07:33,083

we have identified, you

230

00:07:33,083 --> 00:07:33,500

know, before we conclude,

231

00:07:33,708 --> 00:07:36,458

we knew atoms existed. We already knew

232

00:07:36,458 --> 00:07:37,791

what hydrogen gas was, you

233

00:07:37,791 --> 00:07:39,625

know, chemists were able to,

234

00:07:39,625 --> 00:07:42,375

you know, use it. And yet we didn't know

235

00:07:42,375 --> 00:07:43,875

that it was made of these little tiny

236

00:07:43,875 --> 00:07:44,958

protons and electrons.

237

00:07:44,958 --> 00:07:47,041

It's the same thing with dark matter. So

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00:07:47,041 --> 00:07:48,583

I think the right analogy

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00:07:48,583 --> 00:07:50,791

is think of chemists finding

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00:07:50,791 --> 00:07:53,375

elements in the periodic table centuries

241

00:07:53,375 --> 00:07:55,750

ago, but without knowing what's the

242

00:07:55,750 --> 00:07:56,916

fundamental structure.

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00:07:56,916 --> 00:07:58,750

So we know dark matter is out there, but

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00:07:58,750 --> 00:08:00,208

we don't know what the fundamental

245

00:08:00,208 --> 00:08:00,791

structure is. So that's

246

00:08:01,083 --> 00:08:03,083

why it's not good enough to say we've got

247

00:08:03,083 --> 00:08:04,500

this evidence from our

248

00:08:04,500 --> 00:08:05,500

galaxy, this other galaxy,

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00:08:05,500 --> 00:08:07,500

and the universe as a whole. It's still

250

00:08:07,500 --> 00:08:10,125

not good enough for most

251

00:08:10,125 --> 00:08:12,083

scientists. We need to go deeper.

252

00:08:12,083 --> 00:08:14,333

A lot of cosmology to my, you know,

253

00:08:14,333 --> 00:08:16,375

amateur eye right now seems to be a

254

00:08:16,375 --> 00:08:17,333

linking of the small with

255

00:08:17,333 --> 00:08:20,250

the big, if you will, with the quantum

256

00:08:20,250 --> 00:08:21,375

world, with the larger

257

00:08:21,375 --> 00:08:24,166

cosmology. We have E.R. equals E.P.R.,

258

00:08:24,166 --> 00:08:26,250

which is trying to combine general

259

00:08:26,250 --> 00:08:28,166

relativity, quantum mechanics to some

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00:08:28,166 --> 00:08:28,875

degree using black holes

261

00:08:29,125 --> 00:08:31,708

and entanglement. And that is, you know,

262

00:08:31,708 --> 00:08:33,833

an example of quantum effects happening

263

00:08:33,833 --> 00:08:35,041

at a macro scale and

264

00:08:35,041 --> 00:08:37,583

us taking that into consideration. Is

265

00:08:37,583 --> 00:08:39,375

there any line of thought

266

00:08:39,375 --> 00:08:41,625

around quantum effects or that

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00:08:41,625 --> 00:08:43,500

same type of principle applying to dark

268

00:08:43,500 --> 00:08:45,666

matter or dark energy? Yes,

269

00:08:45,666 --> 00:08:48,208

absolutely. So in fact, one of

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00:08:48,208 --> 00:08:50,583

the things about my line of work is I'm

271

00:08:50,583 --> 00:08:51,666

always talking about how

272

00:08:51,666 --> 00:08:53,500

it links the small with the

273

00:08:53,500 --> 00:08:54,916

large, the microscopic with the

274

00:08:54,916 --> 00:08:56,250

macroscopic worlds on

275

00:08:56,250 --> 00:08:58,291

multiple scales. So even though we

276  
00:08:58,500 --> 00:09:00,500  
were just talking about how dark matter

277  
00:09:00,500 --> 00:09:01,458  
is out there and we're

278  
00:09:01,458 --> 00:09:02,625  
talking about galaxy, but that's

279  
00:09:02,625 --> 00:09:04,500  
not what I do. I'm not an astronomer. I'm

280  
00:09:04,500 --> 00:09:05,916  
a particle physicist.

281  
00:09:05,916 --> 00:09:07,666  
So what I do is to try to

282  
00:09:07,666 --> 00:09:10,791  
build detectors to see dark matter at the

283  
00:09:10,791 --> 00:09:12,000  
quantum mechanical level, at

284  
00:09:12,000 --> 00:09:14,291  
the particle level, but that's

285  
00:09:14,291 --> 00:09:17,250  
directly impactful on our theories of

286  
00:09:17,250 --> 00:09:18,500  
cosmology and astrophysics.

287  
00:09:18,500 --> 00:09:20,708  
So there's a deep and intimate

288  
00:09:20,708 --> 00:09:23,291

connection between dark matter out there,

289

00:09:23,291 --> 00:09:25,416

so to speak, in space

290

00:09:25,416 --> 00:09:26,708

versus detecting it in particle

291

00:09:27,375 --> 00:09:29,250

detectors. But there's another level of

292

00:09:29,250 --> 00:09:30,083

that too, which is the

293

00:09:30,083 --> 00:09:32,000

type of dark matter detection

294

00:09:32,000 --> 00:09:33,666

technologies I work on. They're designed

295

00:09:33,666 --> 00:09:34,875

to take something that's

296

00:09:34,875 --> 00:09:37,708

invisible, one atom being hit by

297

00:09:37,708 --> 00:09:39,875

a particle of dark matter and turning

298

00:09:39,875 --> 00:09:42,625

that into a macroscopic,

299

00:09:42,625 --> 00:09:45,000

detectable flash of light that the

300

00:09:45,000 --> 00:09:47,333

instrument can then record. And so that's

301  
00:09:47,333 --> 00:09:49,041  
another link where we're taking the

302  
00:09:49,041 --> 00:09:50,083  
microscopic and taking

303  
00:09:50,333 --> 00:09:54,666  
it to the macroscopic realm. Is it

304  
00:09:54,666 --> 00:09:56,416  
microscopic or is it at a

305  
00:09:56,416 --> 00:09:57,791  
level where the quantum effects are

306  
00:09:57,791 --> 00:10:00,166  
applicable? Oh definitely, quantum

307  
00:10:00,166 --> 00:10:02,666  
effects are definitely applicable. It

308  
00:10:02,666 --> 00:10:03,500  
depends on the type of

309  
00:10:03,500 --> 00:10:05,875  
dark matter actually. We're actually not

310  
00:10:05,875 --> 00:10:08,083  
sure whether dark matter

311  
00:10:08,083 --> 00:10:09,500  
is what you would call more

312  
00:10:09,500 --> 00:10:11,541  
particle-like or more wave-like. That's

313  
00:10:11,541 --> 00:10:13,458

kind of a misnomer because in quantum

314

00:10:13,458 --> 00:10:13,833

mechanics everything

315

00:10:14,125 --> 00:10:17,666

is a particle and a wave, right? So the

316

00:10:17,666 --> 00:10:19,166

thing is, we don't know,

317

00:10:19,166 --> 00:10:21,125

is dark matter really heavy?

318

00:10:21,125 --> 00:10:23,750

In which case it acts more like a

319

00:10:23,750 --> 00:10:25,666

particle, like a billiard ball on a pool

320

00:10:25,666 --> 00:10:27,666

table. Or is dark matter

321

00:10:27,666 --> 00:10:30,333

more wave-like? Does it act more like

322

00:10:30,333 --> 00:10:31,500

water or sound waves? Dark

323

00:10:31,500 --> 00:10:32,708

matter could be anywhere in

324

00:10:32,708 --> 00:10:35,416

between those possibilities or something

325

00:10:35,416 --> 00:10:37,916

else. And so the type of dark

326

00:10:37,916 --> 00:10:39,500

matter I focus on, different

327

00:10:39,500 --> 00:10:40,541

researchers have their different

328

00:10:40,541 --> 00:10:42,166

specialties, I'm looking for

329

00:10:42,166 --> 00:10:43,583

particle-like dark matter where the

330

00:10:44,166 --> 00:10:47,000

quantum effects are less important. What

331

00:10:47,000 --> 00:10:49,500

I mean by that is, in our

332

00:10:49,500 --> 00:10:51,250

detection technologies, it's

333

00:10:51,250 --> 00:10:53,708

almost like two microscopic billiard

334

00:10:53,708 --> 00:10:55,208

balls hitting each other. So

335

00:10:55,208 --> 00:10:56,958

we can for the most part, not

336

00:10:56,958 --> 00:10:58,208

entirely of course because we're stuck

337

00:10:58,208 --> 00:11:00,000

about atoms, we can for the most part

338

00:11:00,000 --> 00:11:01,208

ignore quantum effects

339

00:11:01,208 --> 00:11:03,500

and pretend it's a classical system as if

340

00:11:03,500 --> 00:11:05,625

it was a pool table. But not

341

00:11:05,625 --> 00:11:06,750

all dark matter researchers

342

00:11:06,750 --> 00:11:09,375

do that. Some consider the possibility

343

00:11:09,375 --> 00:11:10,541

that dark matter acts more

344

00:11:10,541 --> 00:11:12,083

like waves, in which case it

345

00:11:12,375 --> 00:11:15,666

would have more quantum weirdness.

346

00:11:15,666 --> 00:11:18,500

Interesting. So how do you detect or

347

00:11:18,500 --> 00:11:19,500

potentially detect these

348

00:11:19,500 --> 00:11:21,000

objects? You said you are directly

349

00:11:21,000 --> 00:11:22,333

related to that, so what does that

350

00:11:22,333 --> 00:11:23,625

process look like and how do you

351  
00:11:23,625 --> 00:11:24,875  
go about that right now or how are you

352  
00:11:24,875 --> 00:11:26,750  
trying to do that? So I work an

353  
00:11:26,750 --> 00:11:28,125  
experiment called LZ, which

354  
00:11:28,125 --> 00:11:30,125  
is short for lux zeppelin. It's a merger

355  
00:11:30,125 --> 00:11:31,166  
of two earlier

356  
00:11:31,166 --> 00:11:33,250  
experiments, lux and zeppelin, and the

357  
00:11:33,250 --> 00:11:34,958  
technology it uses is not the only one.

358  
00:11:34,958 --> 00:11:36,208  
This is only one example of

359  
00:11:36,208 --> 00:11:37,375  
a broad class of detectors

360  
00:11:37,708 --> 00:11:39,708  
called direct detectors. What direct

361  
00:11:39,708 --> 00:11:41,875  
detectors do is they'll have a

362  
00:11:41,875 --> 00:11:44,875  
giant tank of liquid or solid

363  
00:11:44,875 --> 00:11:48,666

or maybe a gas, a giant target. And the

364

00:11:48,666 --> 00:11:51,250

idea is you look for dark

365

00:11:51,250 --> 00:11:54,500

matter to hit one of the nuclei

366

00:11:54,500 --> 00:11:56,625

inside of one of the atoms in your

367

00:11:56,625 --> 00:11:57,958

experiment. So this is a

368

00:11:57,958 --> 00:12:00,750

very broad class of experiments

369

00:12:00,750 --> 00:12:03,375

and different people around the world use

370

00:12:03,375 --> 00:12:04,583

different substances.

371

00:12:04,583 --> 00:12:06,416

So LZ uses liquid xenon,

372

00:12:06,708 --> 00:12:08,208

the reason why we use liquid xenon, it

373

00:12:08,208 --> 00:12:11,125

has several advantages. It's dense when

374

00:12:11,125 --> 00:12:12,291

it's liquefied, when

375

00:12:12,291 --> 00:12:15,625

it's cold, and so it can stop non-dark

376

00:12:15,625 --> 00:12:17,583

matter, other kinds of

377

00:12:17,583 --> 00:12:19,166

radiation, just other particles

378

00:12:19,166 --> 00:12:20,833

we know and love, just naturally

379

00:12:20,833 --> 00:12:22,458

occurring radiation. But the

380

00:12:22,458 --> 00:12:24,125

general idea for all direct

381

00:12:24,125 --> 00:12:26,416

detection experiments is dark matter

382

00:12:26,416 --> 00:12:27,958

comes and hits one of the

383

00:12:27,958 --> 00:12:29,541

nuclei inside one of the atoms

384

00:12:29,541 --> 00:12:32,416

in your target and then when that atom is

385

00:12:32,416 --> 00:12:33,750

moving, it has got extra

386

00:12:33,750 --> 00:12:35,500

energy now, it produces some kind

387

00:12:35,750 --> 00:12:38,875

of signal you can detect. Maybe it's

388

00:12:38,875 --> 00:12:40,125

electric, maybe it's charged,

389

00:12:40,125 --> 00:12:42,500

maybe it's light, maybe it's

390

00:12:42,500 --> 00:12:45,083

heat. And so you're looking for a signal

391

00:12:45,083 --> 00:12:46,500

so the different

392

00:12:46,500 --> 00:12:48,416

technologies that are used

393

00:12:48,416 --> 00:12:51,000

rely on some sort of macroscopic

394

00:12:51,000 --> 00:12:53,375

measurable signal from that microscopic

395

00:12:53,375 --> 00:12:55,000

interaction of that first

396

00:12:55,000 --> 00:12:57,375

atomic or nuclear recoil. So in the case

397

00:12:57,375 --> 00:12:59,166

of the technology I spend

398

00:12:59,166 --> 00:13:00,916

most of my time on liquid xenon,

399

00:13:00,916 --> 00:13:03,125

we have two signals, light and charge. We

400

00:13:03,125 --> 00:13:04,416

combine those signals

401  
00:13:04,416 --> 00:13:05,166  
because that gives us like

402  
00:13:05,916 --> 00:13:08,166  
position and energy reconstruction and

403  
00:13:08,166 --> 00:13:10,791  
information. Okay. Is there direct

404  
00:13:10,791 --> 00:13:14,125  
evidence of this dark matter

405  
00:13:14,125 --> 00:13:17,000  
interacting with the nucleus of atoms or

406  
00:13:17,000 --> 00:13:19,000  
is that an assumption still?

407  
00:13:19,000 --> 00:13:21,041  
That's an assumption and it's

408  
00:13:21,041 --> 00:13:23,083  
one that's required in order to move

409  
00:13:23,083 --> 00:13:25,500  
forward. So there's absolutely no proof

410  
00:13:25,500 --> 00:13:26,666  
or evidence that it's

411  
00:13:26,666 --> 00:13:29,166  
even possible. So all we know is that

412  
00:13:29,166 --> 00:13:30,166  
dark matter interacts

413  
00:13:30,166 --> 00:13:32,250

gravitationally. So in all the direct

414

00:13:32,708 --> 00:13:35,666

detection experiments, the assumption is

415

00:13:35,666 --> 00:13:36,416

always that there's

416

00:13:36,416 --> 00:13:37,916

something extra, there's some sort

417

00:13:37,916 --> 00:13:41,833

of weak, very rare interaction other than

418

00:13:41,833 --> 00:13:43,833

gravity that allows the dark

419

00:13:43,833 --> 00:13:45,791

matter in a sense to talk to

420

00:13:45,791 --> 00:13:49,291

a nucleus and kick it and give it some

421

00:13:49,291 --> 00:13:51,541

measurable energy. That is absolutely an

422

00:13:51,541 --> 00:13:52,125

assumption. It could

423

00:13:52,125 --> 00:13:54,875

be wrong but without that assumption then

424

00:13:54,875 --> 00:13:55,916

we wouldn't even then

425

00:13:55,916 --> 00:13:57,041

there's no point in even trying

426  
00:13:57,375 --> 00:13:59,666  
to detect dark matter. But the reason why

427  
00:13:59,666 --> 00:14:00,833  
it's a decent assumption

428  
00:14:00,833 --> 00:14:03,208  
is because we have a lot of

429  
00:14:03,208 --> 00:14:06,083  
models like a supersymmetry, a

430  
00:14:06,083 --> 00:14:08,291  
collusicline extra dimensions and all

431  
00:14:08,291 --> 00:14:10,916  
these other ideas out there

432  
00:14:10,916 --> 00:14:15,208  
that all predict that there could be a

433  
00:14:15,208 --> 00:14:17,208  
particle that might explain

434  
00:14:17,208 --> 00:14:18,833  
dark matter, some sort of new

435  
00:14:18,833 --> 00:14:20,791  
particle is predicted by all these

436  
00:14:20,791 --> 00:14:22,958  
different theories. And in

437  
00:14:22,958 --> 00:14:24,000  
almost every case they will

438  
00:14:24,416 --> 00:14:26,500

have interactions other than

439

00:14:26,500 --> 00:14:28,500

gravitational. And so that's why that's

440

00:14:28,500 --> 00:14:30,416

how we justify that assumption

441

00:14:30,416 --> 00:14:32,125

but it is still an assumption. It could

442

00:14:32,125 --> 00:14:33,250

be dark matter only

443

00:14:33,250 --> 00:14:34,583

interacts gravitationally

444

00:14:34,583 --> 00:14:37,458

in which case we may never be able to

445

00:14:37,458 --> 00:14:38,916

detect it directly and the

446

00:14:38,916 --> 00:14:40,791

astronomical evidence may be all

447

00:14:40,791 --> 00:14:42,875

that humanity ever gets for it which

448

00:14:42,875 --> 00:14:43,833

would be very sad because

449

00:14:43,833 --> 00:14:45,166

that would be very hard to

450

00:14:45,166 --> 00:14:47,041

to figure out what it is if it only

451  
00:14:47,041 --> 00:14:49,333  
interacts through gravity.

452  
00:14:49,333 --> 00:14:52,000  
Interesting. So I don't want to

453  
00:14:52,333 --> 00:14:55,083  
jump into UAP quite yet but I feel like

454  
00:14:55,083 --> 00:14:56,625  
there's a lot of analogies

455  
00:14:56,625 --> 00:14:59,375  
that we could talk about.

456  
00:14:59,375 --> 00:15:01,875  
Maybe just for a quick aside before we

457  
00:15:01,875 --> 00:15:04,875  
perhaps get back to physics in a moment,

458  
00:15:04,875 --> 00:15:07,625  
you were doing work on detecting UAP,

459  
00:15:07,625 --> 00:15:09,666  
unidentified anomalous phenomenon. Is

460  
00:15:09,666 --> 00:15:10,583  
that the definition you

461  
00:15:10,583 --> 00:15:13,375  
use? Oh, everyone uses a different one.

462  
00:15:13,375 --> 00:15:15,250  
No use, what is it?

463  
00:15:15,250 --> 00:15:18,083

Unidentified aerial phenomenon or

464

00:15:18,791 --> 00:15:20,583

aerospace. Sometimes aerial becomes

465

00:15:20,583 --> 00:15:23,625

aerospace and sometimes yeah unidentified

466

00:15:23,625 --> 00:15:25,375

becomes unclassified.

467

00:15:25,375 --> 00:15:27,250

Right, we keep changing what the letters

468

00:15:27,250 --> 00:15:28,000

mean, we keep changing

469

00:15:28,000 --> 00:15:29,375

what the letters are even.

470

00:15:29,375 --> 00:15:30,833

So let's talk about how you got involved

471

00:15:30,833 --> 00:15:33,000

in that topic. When did that begin?

472

00:15:33,000 --> 00:15:36,500

So that began not too long ago actually

473

00:15:36,500 --> 00:15:38,000

maybe about five years

474

00:15:38,000 --> 00:15:38,708

ago something like that,

475

00:15:38,708 --> 00:15:40,500

you know time warps during the pandemic,

476

00:15:40,500 --> 00:15:41,583

it's hard to remember but it was before

477

00:15:42,375 --> 00:15:44,958

it was before the pandemic started and it

478

00:15:44,958 --> 00:15:47,250

was all actually it was

479

00:15:47,250 --> 00:15:48,916

primarily due to my colleague

480

00:15:48,916 --> 00:15:50,583

Professor Kevin Knuth who's also at the

481

00:15:50,583 --> 00:15:52,208

University of Albany, he's

482

00:15:52,208 --> 00:15:54,041

been big on this for years and

483

00:15:54,041 --> 00:15:56,208

he's the one that roped me in and sort of

484

00:15:56,208 --> 00:15:58,583

convinced me as an adult but

485

00:15:58,583 --> 00:15:59,958

the seeds were sort of there

486

00:15:59,958 --> 00:16:02,833

because as a child I watched like for

487

00:16:02,833 --> 00:16:05,208

example when I was a kid you know this

488

00:16:05,208 --> 00:16:05,958

totally scared the crap

489

00:16:05,958 --> 00:16:08,458

out of me I watched the Rendlesham and

490

00:16:08,458 --> 00:16:09,791

Forest episode for example

491

00:16:09,791 --> 00:16:10,791

of Unsolved Mysteries with

492

00:16:11,250 --> 00:16:14,208

Robert Stack and was glowing red orb and

493

00:16:14,208 --> 00:16:16,708

stuff so I would watch the

494

00:16:16,708 --> 00:16:20,000

the UFO stuff as a kid but

495

00:16:20,000 --> 00:16:22,750

probably most important I watched Star

496

00:16:22,750 --> 00:16:24,625

Trek the Next Generation and so that

497

00:16:24,625 --> 00:16:27,041

really opened my mind

498

00:16:27,041 --> 00:16:29,875

to possibilities but more from like a

499

00:16:29,875 --> 00:16:31,416

science fiction perspective

500

00:16:31,416 --> 00:16:32,833

versus a fantasy perspective

501  
00:16:32,833 --> 00:16:34,083  
where there's this subtle difference you

502  
00:16:34,083 --> 00:16:36,166  
know sort of like the hard science

503  
00:16:36,166 --> 00:16:36,875  
fiction nuts and bolts

504  
00:16:38,166 --> 00:16:39,583  
and so that's sort of those are sort of

505  
00:16:39,583 --> 00:16:42,125  
like the the threads and and the

506  
00:16:42,125 --> 00:16:43,458  
motivations it was really

507  
00:16:43,458 --> 00:16:45,041  
though the watershed moment a lot of

508  
00:16:45,041 --> 00:16:46,000  
people will probably say

509  
00:16:46,000 --> 00:16:48,000  
the same answer but it is true

510  
00:16:48,000 --> 00:16:51,541  
was the New York Times article of a few

511  
00:16:51,541 --> 00:16:52,625  
years ago about the you

512  
00:16:52,625 --> 00:16:54,500  
know about A-Tip and the

513  
00:16:54,500 --> 00:16:57,125

and you know by Leslie Kane and Ralph

514

00:16:57,125 --> 00:16:58,083

Blumenthal it was really

515

00:16:58,083 --> 00:17:00,625

that kind of changed the game

516

00:17:00,625 --> 00:17:02,166

for not just me of course for so many

517

00:17:02,166 --> 00:17:02,833

people it's like wow

518

00:17:02,833 --> 00:17:04,208

this is the New York Times

519

00:17:04,500 --> 00:17:06,791

it's not you know supermarket tabloid

520

00:17:06,791 --> 00:17:08,416

from the checkout aisle

521

00:17:08,416 --> 00:17:10,166

and that really changed

522

00:17:10,166 --> 00:17:14,250

the conversation and it made it more okay

523

00:17:14,250 --> 00:17:16,833

to to study UAP as a

524

00:17:16,833 --> 00:17:18,625

scientist. How were you approached

525

00:17:18,625 --> 00:17:20,208

you know what was the how were you

526

00:17:20,208 --> 00:17:21,208

convinced if you will what

527

00:17:21,208 --> 00:17:22,750

was the logic that was used to

528

00:17:22,750 --> 00:17:24,083

convince you and what were you convinced

529

00:17:24,083 --> 00:17:24,958

of that there's something

530

00:17:24,958 --> 00:17:26,833

there that's worth looking into?

531

00:17:26,833 --> 00:17:28,958

Yeah so that's a good question so what I

532

00:17:28,958 --> 00:17:31,875

was how what my colleague

533

00:17:31,875 --> 00:17:33,041

Kevin was able to convince me of

534

00:17:34,083 --> 00:17:36,833

was anomalous velocities in accelerations

535

00:17:36,833 --> 00:17:39,791

in particularly in the Nimitz encounter

536

00:17:39,791 --> 00:17:42,291

but in other encounters other famous

537

00:17:42,291 --> 00:17:45,125

cases as well like the Japanese airline

538

00:17:45,125 --> 00:17:45,875

incident things like

539

00:17:45,875 --> 00:17:48,750

that and and so he was able to by looking

540

00:17:48,750 --> 00:17:51,125

at actual numbers and

541

00:17:51,125 --> 00:17:54,250

data be able to show evidence

542

00:17:54,250 --> 00:17:56,000

that he could show me he could show other

543

00:17:56,000 --> 00:17:57,291

scientific colleagues

544

00:17:57,291 --> 00:17:58,583

of there being anomalous

545

00:17:58,958 --> 00:18:02,208

velocities and accelerations and that's

546

00:18:02,208 --> 00:18:04,416

what really began to

547

00:18:04,416 --> 00:18:05,458

convince me that there was

548

00:18:05,458 --> 00:18:08,166

something worth worth looking at it does

549

00:18:08,166 --> 00:18:09,125

still doesn't prove it's

550

00:18:09,125 --> 00:18:10,458

alien spacecraft because you

551  
00:18:10,458 --> 00:18:13,333  
could have some naturally occurring

552  
00:18:13,333 --> 00:18:15,000  
phenomenon you know something in

553  
00:18:15,000 --> 00:18:16,333  
atmospheric physics but what

554  
00:18:16,333 --> 00:18:18,958  
it does to me prove is that there's

555  
00:18:18,958 --> 00:18:20,250  
something worth studying and

556  
00:18:20,250 --> 00:18:21,583  
not ignoring there that you

557  
00:18:21,583 --> 00:18:23,666  
should that's worth diving into so it's

558  
00:18:23,666 --> 00:18:25,041  
really looking at numbers of

559  
00:18:25,041 --> 00:18:26,708  
velocities and accelerations

560  
00:18:27,125 --> 00:18:29,041  
from reliable sources you know from like

561  
00:18:29,041 --> 00:18:31,375  
the the US Navy videos are

562  
00:18:31,375 --> 00:18:34,708  
what really convinced me but

563  
00:18:34,708 --> 00:18:37,000

like I said the seed was was already

564

00:18:37,000 --> 00:18:38,458

planted from from childhood

565

00:18:38,458 --> 00:18:40,000

from things like Star Trek and

566

00:18:40,000 --> 00:18:42,541

Unsolved Mysteries and stuff so I

567

00:18:42,541 --> 00:18:44,166

probably didn't need that much

568

00:18:44,166 --> 00:18:46,958

convincing. I was a I was a next

569

00:18:46,958 --> 00:18:49,500

generation fan myself in fact there's a I

570

00:18:49,500 --> 00:18:51,375

think a video of my

571

00:18:51,375 --> 00:18:52,541

one-year-old daughter screaming at the

572

00:18:53,041 --> 00:18:56,541

the intro to Star Trek and excitement

573

00:18:56,541 --> 00:18:58,291

I've got a video of my

574

00:18:58,291 --> 00:19:00,083

daughter Ivy doing the same thing

575

00:19:00,083 --> 00:19:03,416

it used to be that when she was upset she

576

00:19:03,416 --> 00:19:05,500

would be calmed by the

577

00:19:05,500 --> 00:19:07,041

Star Trek the next generation

578

00:19:07,041 --> 00:19:09,625

theme song and credits playing so I've

579

00:19:09,625 --> 00:19:11,208

heard that you've also tried

580

00:19:11,208 --> 00:19:13,041

to bring in some of that pop

581

00:19:13,041 --> 00:19:15,125

culture whether it be Star Trek or other

582

00:19:15,125 --> 00:19:17,833

things into some of your

583

00:19:17,833 --> 00:19:18,333

communication style when it

584

00:19:18,625 --> 00:19:20,541

comes to physics that's right can you

585

00:19:20,541 --> 00:19:22,750

give an example of that sure

586

00:19:22,750 --> 00:19:24,333

so when I would teach physics

587

00:19:24,333 --> 00:19:26,041

three which was modern physics that's

588

00:19:26,041 --> 00:19:28,125

like a bit of relativity and a bit of

589

00:19:28,125 --> 00:19:29,416

quantum as well mixed

590

00:19:29,416 --> 00:19:31,375

mixed together and and some

591

00:19:31,375 --> 00:19:33,708

thermodynamics in that class which I've

592

00:19:33,708 --> 00:19:35,416

taught four or five times now

593

00:19:35,416 --> 00:19:38,541

in that particular class I would um I

594

00:19:38,541 --> 00:19:41,583

often based a lot the whole almost all

595

00:19:41,583 --> 00:19:42,625

the homework questions

596

00:19:43,000 --> 00:19:47,458

were either Star Trek or Star Wars or

597

00:19:47,458 --> 00:19:49,250

Doctor Who or something else

598

00:19:49,250 --> 00:19:51,333

like I had a question about

599

00:19:51,333 --> 00:19:54,000

Raoul like the the red star that of

600

00:19:54,000 --> 00:19:55,916

Superman's you know home star

601  
00:19:55,916 --> 00:19:57,500  
system they just could I would

602  
00:19:57,500 --> 00:19:59,250  
throw in question I would I would write

603  
00:19:59,250 --> 00:20:00,583  
almost all of my homework

604  
00:20:00,583 --> 00:20:02,083  
questions like that so I think

605  
00:20:02,083 --> 00:20:04,458  
that's a good example and I'll do

606  
00:20:04,458 --> 00:20:07,791  
analogies from from uh Star Trek and

607  
00:20:07,791 --> 00:20:08,333  
maybe you know skeptical

608  
00:20:08,916 --> 00:20:11,000  
scientists will get uh uber skeptical

609  
00:20:11,000 --> 00:20:12,583  
scientists get get me get

610  
00:20:12,583 --> 00:20:13,708  
angry at me for doing that but I

611  
00:20:13,708 --> 00:20:15,875  
think there's no harm in using something

612  
00:20:15,875 --> 00:20:17,166  
even that's fictional to

613  
00:20:17,166 --> 00:20:19,000

get people interested and

614

00:20:19,000 --> 00:20:21,583

excited in doing real science it does

615

00:20:21,583 --> 00:20:23,583

science fiction seems to

616

00:20:23,583 --> 00:20:25,000

drive our motivation towards

617

00:20:25,000 --> 00:20:26,750

certain ends to some degree whether

618

00:20:26,750 --> 00:20:28,000

they're feasible or not it

619

00:20:28,000 --> 00:20:29,375

doesn't really matter if we

620

00:20:29,375 --> 00:20:31,000

want it to be and we believe in it we are

621

00:20:31,000 --> 00:20:31,916

going to push in that

622

00:20:31,916 --> 00:20:32,500

direction and we're going to get a

623

00:20:32,791 --> 00:20:35,833

little bit closer to some degree um

624

00:20:35,833 --> 00:20:38,958

that's very true so you got

625

00:20:38,958 --> 00:20:40,750

involved in UAP uh through a

626  
00:20:40,750 --> 00:20:42,833  
colleague what does that look like how

627  
00:20:42,833 --> 00:20:43,750  
are you involved in it at

628  
00:20:43,750 --> 00:20:45,166  
least at that point were you

629  
00:20:45,166 --> 00:20:47,166  
asked to provide some specialty based off

630  
00:20:47,166 --> 00:20:49,250  
of your perhaps um I don't

631  
00:20:49,250 --> 00:20:50,375  
want to call experimental

632  
00:20:50,375 --> 00:20:51,666  
background is that correct that is

633  
00:20:51,666 --> 00:20:54,250  
correct yeah yeah so yeah when many

634  
00:20:54,250 --> 00:20:55,500  
people hear that I'm a

635  
00:20:55,500 --> 00:20:57,458  
physicist they immediately say oh so

636  
00:20:57,458 --> 00:20:58,708  
you're a theoretical

637  
00:20:58,708 --> 00:20:59,500  
physicist and I say no I'm an

638  
00:21:00,250 --> 00:21:01,875

experimental physicist and then I get

639

00:21:01,875 --> 00:21:03,833

blank stares you know like a cocktail

640

00:21:03,833 --> 00:21:05,500

party those are very

641

00:21:05,500 --> 00:21:07,250

different things so an experimental

642

00:21:07,250 --> 00:21:10,458

physicist is more like an engineer

643

00:21:10,458 --> 00:21:11,875

whereas a theoretical

644

00:21:11,875 --> 00:21:13,875

physicist is more like a mathematician

645

00:21:13,875 --> 00:21:15,208

that's a very imperfect

646

00:21:15,208 --> 00:21:15,958

analogy because they're their

647

00:21:15,958 --> 00:21:18,583

own things of course but basically I

648

00:21:18,583 --> 00:21:20,250

build things with my hands I

649

00:21:20,250 --> 00:21:22,791

don't just I will do things on

650

00:21:22,791 --> 00:21:24,208

computer computer simulation things like

651  
00:21:24,208 --> 00:21:25,916  
that so I also use a pencil and

652  
00:21:25,916 --> 00:21:26,625  
calculator like a theoretical

653  
00:21:27,208 --> 00:21:29,625  
physicist but I'm but I focus on building

654  
00:21:29,625 --> 00:21:31,208  
things and so actually you

655  
00:21:31,208 --> 00:21:32,250  
asked a really good question

656  
00:21:32,250 --> 00:21:34,625  
about well what what expertise did I

657  
00:21:34,625 --> 00:21:38,000  
bring to uh UAP when my colleague

658  
00:21:38,000 --> 00:21:39,333  
professor Knuth invited me

659  
00:21:39,333 --> 00:21:42,375  
to to join him in that grand adventure

660  
00:21:42,375 --> 00:21:43,791  
and the expertise that I

661  
00:21:43,791 --> 00:21:45,291  
bring is radiation detection

662  
00:21:45,291 --> 00:21:48,083  
because dark matter detection is just one

663  
00:21:48,083 --> 00:21:49,416

step away from just

664

00:21:49,416 --> 00:21:50,875

detection of any particles in

665

00:21:50,875 --> 00:21:54,250

general and the reason is is because when

666

00:21:54,250 --> 00:21:55,583

you're looking for a new

667

00:21:55,583 --> 00:21:56,250

particle like dark matter and

668

00:21:56,500 --> 00:21:59,000

this applies even to you know particle

669

00:21:59,000 --> 00:22:00,500

colliders like the LHC in

670

00:22:00,500 --> 00:22:02,541

Switzerland you need to know what

671

00:22:02,541 --> 00:22:04,708

particles that already we already

672

00:22:04,708 --> 00:22:06,500

understand what do they look like you

673

00:22:06,500 --> 00:22:07,500

cannot claim to discover

674

00:22:07,500 --> 00:22:09,000

something new unless you've addressed all

675

00:22:09,000 --> 00:22:10,791

the existing possibilities

676

00:22:10,791 --> 00:22:11,791

and the reason why that's

677

00:22:11,791 --> 00:22:16,000

connected to UAP is because of all of the

678

00:22:16,000 --> 00:22:18,375

claims of radiation

679

00:22:18,375 --> 00:22:19,708

there's the famous you know cash

680

00:22:19,708 --> 00:22:22,458

landrum case in Texas it has just one

681

00:22:22,458 --> 00:22:23,291

example of many there's

682

00:22:23,291 --> 00:22:24,416

another example in France one in

683

00:22:24,875 --> 00:22:26,833

Canada there's plenty of historical

684

00:22:26,833 --> 00:22:30,458

examples of claims of UAP producing

685

00:22:30,458 --> 00:22:32,458

radiation and to me that's

686

00:22:32,458 --> 00:22:34,666

really interesting because you can fake

687

00:22:34,666 --> 00:22:36,541

or hoax a video it's really

688

00:22:36,541 --> 00:22:38,500

hard to fake a radiation signal

689

00:22:38,500 --> 00:22:40,500

I'm not saying it's impossible but like

690

00:22:40,500 --> 00:22:43,083

it's one thing to use CGI and

691

00:22:43,083 --> 00:22:44,708

fake people with a UFO picture

692

00:22:44,708 --> 00:22:48,000

but radiation screams to me real

693

00:22:48,000 --> 00:22:50,166

phenomenon very difficult to hoax and

694

00:22:50,166 --> 00:22:50,708

again that doesn't prove it's

695

00:22:51,125 --> 00:22:53,041

alien spacecraft but it proves something

696

00:22:53,041 --> 00:22:54,583

weird and interesting and

697

00:22:54,583 --> 00:22:55,916

so that's the angle where I

698

00:22:55,916 --> 00:22:58,958

come in is my expertise is in particle

699

00:22:58,958 --> 00:23:00,833

detection that's very

700

00:23:00,833 --> 00:23:02,250

interesting there's a bit of analogy

701  
00:23:02,250 --> 00:23:04,166  
there between looking for a new particle

702  
00:23:04,166 --> 00:23:05,458  
that you've hypothesized

703  
00:23:05,458 --> 00:23:10,375  
about you may you have to

704  
00:23:10,375 --> 00:23:12,666  
account for all the particles and and

705  
00:23:12,666 --> 00:23:13,541  
things that you're expecting

706  
00:23:13,541 --> 00:23:14,916  
to see and then work your way

707  
00:23:14,916 --> 00:23:16,708  
backwards to see what anomalous data

708  
00:23:16,708 --> 00:23:18,416  
might exist exactly remove

709  
00:23:18,416 --> 00:23:20,000  
all that it's a very similar

710  
00:23:20,416 --> 00:23:24,500  
problem to UAP that's right so but the

711  
00:23:24,500 --> 00:23:25,458  
the fortunate thing when

712  
00:23:25,458 --> 00:23:26,916  
we're looking for dark matter

713  
00:23:26,916 --> 00:23:29,625

is we have a short list of possibilities

714

00:23:29,625 --> 00:23:30,916

all the different particles

715

00:23:30,916 --> 00:23:32,625

that we've already discovered

716

00:23:32,625 --> 00:23:35,000

and we know how they behave it's always

717

00:23:35,000 --> 00:23:35,958

very challenging when

718

00:23:35,958 --> 00:23:37,666

you're doing UAP research

719

00:23:37,666 --> 00:23:39,375

because you can prove something's not a

720

00:23:39,375 --> 00:23:41,708

bird a plane a drone a

721

00:23:41,708 --> 00:23:43,250

helicopter and but what about

722

00:23:43,250 --> 00:23:45,333

that one thing you forgot on your list ah

723

00:23:45,333 --> 00:23:46,625

it's a dragonfly or

724

00:23:46,625 --> 00:23:47,166

something you know what I mean like

725

00:23:47,416 --> 00:23:50,875

that's it's really hard when the list of

726

00:23:50,875 --> 00:23:51,708

possibilities is so

727

00:23:51,708 --> 00:23:53,708

long so it's a good analogy

728

00:23:53,708 --> 00:23:56,833

but with UAP you have such a long list

729

00:23:56,833 --> 00:23:58,083

because you've got animals

730

00:23:58,083 --> 00:24:00,166

you've got human-made craft

731

00:24:00,166 --> 00:24:02,791

of all different varieties that it makes

732

00:24:02,791 --> 00:24:04,750

it just exacerbates the

733

00:24:04,750 --> 00:24:06,583

problem because you have to show

734

00:24:06,583 --> 00:24:09,208

it's when you want to claim something is

735

00:24:09,208 --> 00:24:11,041

an anomaly or anomalous

736

00:24:11,041 --> 00:24:12,000

you have to say it's not

737

00:24:12,416 --> 00:24:14,916

this this this this and the the list is

738

00:24:14,916 --> 00:24:16,375

even longer than when we

739

00:24:16,375 --> 00:24:17,875

say something is dark matter

740

00:24:17,875 --> 00:24:21,375

it's not an alpha beta neutron gamma muon

741

00:24:21,375 --> 00:24:23,166

not that many things not

742

00:24:23,166 --> 00:24:24,625

that many other kinds of

743

00:24:24,625 --> 00:24:26,708

they're not that many kinds of particles

744

00:24:26,708 --> 00:24:27,625

I mean there are plenty of

745

00:24:27,625 --> 00:24:28,916

subatomic particles but not

746

00:24:28,916 --> 00:24:31,458

that many that would interact on a

747

00:24:31,458 --> 00:24:33,833

regular basis with a detector of the

748

00:24:33,833 --> 00:24:35,500

kinds I use so too many

749

00:24:36,083 --> 00:24:38,541

potential variables compared to particle

750

00:24:38,541 --> 00:24:41,166

physics yeah the search

751  
00:24:41,166 --> 00:24:44,750  
space is is much higher as well

752  
00:24:44,750 --> 00:24:47,833  
so how do you look for radiation then and

753  
00:24:47,833 --> 00:24:48,875  
when we say radiation I

754  
00:24:48,875 --> 00:24:49,958  
think the layman would think of

755  
00:24:49,958 --> 00:24:52,625  
your normal uranium type radiation that

756  
00:24:52,625 --> 00:24:53,541  
can physically harm a

757  
00:24:53,541 --> 00:24:54,500  
person is that what you're

758  
00:24:54,500 --> 00:24:57,833  
referring to um yes and no so but first

759  
00:24:57,833 --> 00:24:59,416  
let me see your question is

760  
00:24:59,416 --> 00:25:00,500  
about for the UAP research is

761  
00:25:00,708 --> 00:25:03,000  
that right correct okay so yeah in that

762  
00:25:03,000 --> 00:25:06,000  
case we're not looking for um a new

763  
00:25:06,000 --> 00:25:06,791

particle because then we

764

00:25:06,791 --> 00:25:09,291

will be doing two things at the same time

765

00:25:09,291 --> 00:25:10,333

so we're look what we're

766

00:25:10,333 --> 00:25:11,750

looking for in that case

767

00:25:11,750 --> 00:25:15,458

are those natural kinds of radiation you

768

00:25:15,458 --> 00:25:16,875

mentioned but something

769

00:25:16,875 --> 00:25:18,958

extra instead of an extra new

770

00:25:18,958 --> 00:25:20,791

particle the goal with radiation

771

00:25:20,791 --> 00:25:23,250

detection for UAP research is a strange

772

00:25:23,250 --> 00:25:24,916

blip that is statistically

773

00:25:25,666 --> 00:25:28,416

anomalous above natural background so you

774

00:25:28,416 --> 00:25:29,625

you're talking about

775

00:25:29,625 --> 00:25:31,791

uranium and those things now most

776

00:25:31,791 --> 00:25:33,208

radiation most people don't know this is

777

00:25:33,208 --> 00:25:35,458

actually not very harmful

778

00:25:35,458 --> 00:25:37,708

right now in this room we are

779

00:25:37,708 --> 00:25:40,250

constantly bombarded not just by cosmic

780

00:25:40,250 --> 00:25:42,125

radiation but even your body is

781

00:25:42,125 --> 00:25:43,750

radioactive in fact the dark

782

00:25:43,750 --> 00:25:46,000

matter detectors I work on are less

783

00:25:46,000 --> 00:25:47,291

radioactive than this table or

784

00:25:47,291 --> 00:25:49,000

you and me and that's because

785

00:25:49,000 --> 00:25:50,583

in order to find something new you got to

786

00:25:50,583 --> 00:25:51,541

get the background you

787

00:25:51,541 --> 00:25:53,833

know radiation down so when I

788

00:25:54,166 --> 00:25:58,083

talk about the the radiation both for

789

00:25:58,083 --> 00:25:59,208

what we need to eliminate

790

00:25:59,208 --> 00:26:00,541

for our dark matter research

791

00:26:00,541 --> 00:26:02,500

and also what are we looking for in terms

792

00:26:02,500 --> 00:26:04,750

of UAP research we're looking for

793

00:26:04,750 --> 00:26:06,083

something extra above

794

00:26:06,083 --> 00:26:07,833

normal background radiation so the most

795

00:26:07,833 --> 00:26:08,958

common types of radiation

796

00:26:08,958 --> 00:26:11,750

are alpha beta gamma neutron

797

00:26:11,750 --> 00:26:13,833

muon alphas and betas they don't go very

798

00:26:13,833 --> 00:26:15,416

far they'll go like a

799

00:26:15,416 --> 00:26:17,541

few millimeters even in air

800

00:26:17,541 --> 00:26:19,791

so that's kind of useless if you're

801

00:26:19,791 --> 00:26:21,208

trying to remote detect

802

00:26:21,208 --> 00:26:23,208

something that's super radioactive

803

00:26:23,625 --> 00:26:25,791

far far my many miles away in the air so

804

00:26:25,791 --> 00:26:26,791

that's really not the

805

00:26:26,791 --> 00:26:29,000

focus so the focus is really

806

00:26:29,000 --> 00:26:31,375

other things mostly neutrons and gamma

807

00:26:31,375 --> 00:26:34,500

rays so um which made the

808

00:26:34,500 --> 00:26:35,750

incredible okay if I'm not

809

00:26:35,750 --> 00:26:37,625

mistaken but those are the kinds of

810

00:26:37,625 --> 00:26:40,125

particles that can travel long distances

811

00:26:40,125 --> 00:26:42,083

and the idea is again

812

00:26:42,083 --> 00:26:45,166

not to see them period because that's not

813

00:26:45,166 --> 00:26:46,541

anomalous because they're

814

00:26:46,541 --> 00:26:47,833

bombarding us constantly from the

815

00:26:48,250 --> 00:26:50,666

sun from this from other sources in our

816

00:26:50,666 --> 00:26:53,000

galaxy from distant distant stars

817

00:26:53,000 --> 00:26:54,875

supernovas so the goal

818

00:26:54,875 --> 00:26:57,083

there with with UAP and it's a very

819

00:26:57,083 --> 00:27:00,875

challenging one is to see a blip above

820

00:27:00,875 --> 00:27:01,958

normal background and

821

00:27:01,958 --> 00:27:03,458

the reason why that's challenging you

822

00:27:03,458 --> 00:27:05,500

have to be so careful because

823

00:27:05,500 --> 00:27:07,000

if you've got a million data

824

00:27:07,000 --> 00:27:09,333

points for example don't be surprised if

825

00:27:09,333 --> 00:27:10,333

you've got a one in a

826

00:27:10,333 --> 00:27:11,500

million miracle in it and you do

827

00:27:11,791 --> 00:27:15,166

have a blip and so the idea is to take

828

00:27:15,166 --> 00:27:16,208

something traditional for

829

00:27:16,208 --> 00:27:18,375

UAPs you know cameras and have a

830

00:27:18,375 --> 00:27:21,250

blip and the radiation detection at the

831

00:27:21,250 --> 00:27:23,833

same time you've got a weird image on

832

00:27:23,833 --> 00:27:25,416

FLIR or on an ordinary

833

00:27:25,416 --> 00:27:28,250

camera so really the focus of the UAP

834

00:27:28,250 --> 00:27:29,958

research I've been doing um

835

00:27:29,958 --> 00:27:32,708

with UAPX is to do what's called

836

00:27:32,708 --> 00:27:35,500

in science a coincidence measurement it

837

00:27:35,500 --> 00:27:36,708

doesn't mean coincidence like

838

00:27:36,708 --> 00:27:38,166

is used in stand-up parlance

839

00:27:38,416 --> 00:27:40,416

like that's a coincidence no it means

840

00:27:40,416 --> 00:27:42,166

like something's not a

841

00:27:42,166 --> 00:27:43,791

coincidence it's too much of a

842

00:27:43,791 --> 00:27:45,875

it's too much it's too much of a

843

00:27:45,875 --> 00:27:47,125

statistical anomaly to be a coincidence

844

00:27:47,125 --> 00:27:48,708

so what we're looking for

845

00:27:48,708 --> 00:27:52,458

are multiple sensors all saying something

846

00:27:52,458 --> 00:27:54,083

weird is happening within a

847

00:27:54,083 --> 00:27:56,875

very very small time frame

848

00:27:56,875 --> 00:27:59,083

so what other sensors is UAPX using and

849

00:27:59,083 --> 00:28:00,041

now you know broaden it

850

00:28:00,041 --> 00:28:01,833

out a little bit to what the

851  
00:28:01,833 --> 00:28:03,583  
organization as a goal is trying to

852  
00:28:03,583 --> 00:28:05,333  
accomplish yes so the the

853  
00:28:05,333 --> 00:28:07,291  
goal of of UAPX is to figure out

854  
00:28:08,166 --> 00:28:10,250  
very you know very simply what UAP are

855  
00:28:10,250 --> 00:28:12,791  
and that's a very ambitious goal

856  
00:28:12,791 --> 00:28:13,916  
especially because we might

857  
00:28:13,916 --> 00:28:15,750  
not be thinking of one thing right it

858  
00:28:15,750 --> 00:28:17,625  
might be phenomena

859  
00:28:17,625 --> 00:28:19,791  
plural instead of a phenomenon

860  
00:28:19,791 --> 00:28:22,250  
but really want to figure out what is

861  
00:28:22,250 --> 00:28:23,500  
going on are we talking

862  
00:28:23,500 --> 00:28:25,875  
natural phenomena are we talking

863  
00:28:25,875 --> 00:28:29,583

advanced uh a craft figure it out and get

864

00:28:29,583 --> 00:28:31,958

data get data of our own

865

00:28:31,958 --> 00:28:33,750

that is not classified that

866

00:28:34,166 --> 00:28:35,958

doesn't belong to the US government or

867

00:28:35,958 --> 00:28:37,625

any government but is

868

00:28:37,625 --> 00:28:39,500

open data that we can then

869

00:28:39,500 --> 00:28:42,916

publish in scientific publications which

870

00:28:42,916 --> 00:28:44,916

then not just other scientists but

871

00:28:44,916 --> 00:28:46,333

literally anyone can

872

00:28:46,333 --> 00:28:49,250

read and we want to do that with sensors

873

00:28:49,250 --> 00:28:51,083

so you ask also what sensors so that's

874

00:28:51,083 --> 00:28:52,333

our goal the sensors

875

00:28:52,333 --> 00:28:56,916

we use we we use to reach that goal are

876

00:28:56,916 --> 00:28:58,625

cameras of different types

877

00:28:58,625 --> 00:28:59,833

visible light infrared made

878

00:29:00,208 --> 00:29:03,000

very famous of course by the go fast and

879

00:29:03,000 --> 00:29:05,208

gimbal videos but more than

880

00:29:05,208 --> 00:29:07,291

just cameras but the radiation

881

00:29:07,291 --> 00:29:09,416

detection i'd discuss so you take the

882

00:29:09,416 --> 00:29:11,791

cameras take radiation detection and we

883

00:29:11,791 --> 00:29:13,458

want to keep adding to

884

00:29:13,458 --> 00:29:16,583

that we want to add magnetometers there

885

00:29:16,583 --> 00:29:18,291

have been so many claims

886

00:29:18,291 --> 00:29:21,333

going back decades of strange

887

00:29:21,333 --> 00:29:23,250

electromagnetic effects due to UAP that's

888

00:29:23,250 --> 00:29:25,083

testable that's testable

889

00:29:25,083 --> 00:29:26,083

those people we laugh at those

890

00:29:26,583 --> 00:29:28,375

stories and people think they're crazy

891

00:29:28,375 --> 00:29:30,208

but those are testable

892

00:29:30,208 --> 00:29:32,083

hypotheses we can we can do add

893

00:29:32,083 --> 00:29:34,708

trifield meters magnetometers so we

894

00:29:34,708 --> 00:29:36,958

started with cameras both visible and

895

00:29:36,958 --> 00:29:38,541

infrared and we also had

896

00:29:38,541 --> 00:29:41,375

radiation detection we want to expand to

897

00:29:41,375 --> 00:29:42,500

electromagnetic field

898

00:29:42,500 --> 00:29:44,583

detection and and and move

899

00:29:44,583 --> 00:29:46,166

on from there we also want to do

900

00:29:46,166 --> 00:29:48,250

ultraviolet because what if there are

901

00:29:48,250 --> 00:29:49,791

objects that are similarly to

902

00:29:49,791 --> 00:29:51,333

what happened with infrared you know

903

00:29:51,333 --> 00:29:52,541

sometimes there are strange objects that

904

00:29:52,541 --> 00:29:53,375

are visible infrared

905

00:29:54,000 --> 00:29:56,666

and not visible or vice versa what about

906

00:29:56,666 --> 00:29:57,500

ultraviolet you know the

907

00:29:57,500 --> 00:29:58,750

other end of the spectrum

908

00:29:58,750 --> 00:30:01,500

so we want to add more to the spectrum of

909

00:30:01,500 --> 00:30:02,666

light that humans can't

910

00:30:02,666 --> 00:30:04,791

see but our machines can but

911

00:30:04,791 --> 00:30:07,291

also want to add the complementary

912

00:30:07,291 --> 00:30:09,500

sensors that have nothing to do with with

913

00:30:09,500 --> 00:30:10,958

light that are things

914

00:30:10,958 --> 00:30:13,083

like or are connected but aren't you know

915

00:30:13,083 --> 00:30:14,041

visible light or close to

916

00:30:14,041 --> 00:30:14,708

things like electromagnetic

917

00:30:15,375 --> 00:30:18,916

field detection and and the and the and

918

00:30:18,916 --> 00:30:22,291

the the the other sensors like

919

00:30:22,291 --> 00:30:23,916

accelerometers as well for

920

00:30:23,916 --> 00:30:26,375

like whether is there some you know

921

00:30:26,375 --> 00:30:27,916

strange vibration sound we

922

00:30:27,916 --> 00:30:29,416

want to add sound sensors as

923

00:30:29,416 --> 00:30:31,625

well and so many groups are doing this

924

00:30:31,625 --> 00:30:34,041

now UAPX was one of the

925

00:30:34,041 --> 00:30:35,916

first but now it's really taking

926  
00:30:35,916 --> 00:30:38,833  
off really taking off you got um aviloben

927  
00:30:38,833 --> 00:30:40,958  
galleyo project got sky 360

928  
00:30:40,958 --> 00:30:42,250  
you got so many groups now

929  
00:30:42,541 --> 00:30:44,791  
and that's that's great because now more

930  
00:30:44,791 --> 00:30:46,000  
and more scientists and

931  
00:30:46,000 --> 00:30:47,625  
engineers are taking it seriously

932  
00:30:47,625 --> 00:30:49,708  
and trying to get some hard data on on

933  
00:30:49,708 --> 00:30:51,500  
these things yeah it is a

934  
00:30:51,500 --> 00:30:52,875  
good thing to see multiple

935  
00:30:52,875 --> 00:30:55,166  
efforts um would you say there's some

936  
00:30:55,166 --> 00:30:57,166  
competition perhaps with galleyo maybe

937  
00:30:57,166 --> 00:30:58,333  
friendly or are there

938  
00:30:58,333 --> 00:31:01,458

perhaps different methods that uh UAPX is

939

00:31:01,458 --> 00:31:04,000

uh taking than galleyo if you

940

00:31:04,000 --> 00:31:05,458

talk about it so so yeah there

941

00:31:05,750 --> 00:31:09,833

there are we have um extremely similar

942

00:31:09,833 --> 00:31:11,625

approaches and I I think that

943

00:31:11,625 --> 00:31:14,333

it's it's very very important

944

00:31:14,333 --> 00:31:16,708

to to to maintain friendliness and

945

00:31:16,708 --> 00:31:18,250

collaboration absolutely there is some

946

00:31:18,250 --> 00:31:19,625

sense of of competition

947

00:31:19,625 --> 00:31:22,250

but I think it's very important to try to

948

00:31:22,250 --> 00:31:24,000

reduce that because I think

949

00:31:24,000 --> 00:31:27,166

that whatever UAP are whether

950

00:31:27,166 --> 00:31:29,458

whether it's ET or even if it's some sort

951  
00:31:29,458 --> 00:31:30,916  
of strange atmospheric

952  
00:31:30,916 --> 00:31:32,166  
phenomenon there's so much

953  
00:31:32,458 --> 00:31:34,750  
to be gained potentially by what humanity

954  
00:31:34,750 --> 00:31:36,083  
can learn that I think

955  
00:31:36,083 --> 00:31:38,125  
it's very important to not

956  
00:31:38,125 --> 00:31:39,791  
be competitive and petty and I think that

957  
00:31:39,791 --> 00:31:41,958  
might be a detriment so I I

958  
00:31:41,958 --> 00:31:44,625  
think that um but at this so

959  
00:31:44,625 --> 00:31:47,166  
it's very important to have multiple

960  
00:31:47,166 --> 00:31:48,000  
groups I still think there

961  
00:31:48,000 --> 00:31:49,583  
are too many we should start

962  
00:31:49,583 --> 00:31:51,666  
collaborating more and merging I think is

963  
00:31:51,666 --> 00:31:52,916

last time I try to count

964

00:31:52,916 --> 00:31:54,833

like I don't know 30 40 50

965

00:31:54,833 --> 00:31:56,666

groups I try to list all the acronyms

966

00:31:56,666 --> 00:31:58,125

impossible I do think more

967

00:31:58,125 --> 00:31:59,583

people need to merge but I don't

968

00:31:59,958 --> 00:32:02,250

think there should just be one effort

969

00:32:02,250 --> 00:32:03,916

because that's dangerous

970

00:32:03,916 --> 00:32:05,791

because if one if one group

971

00:32:05,791 --> 00:32:09,041

claims some amazing discovery you you

972

00:32:09,041 --> 00:32:10,708

want some healthy competition

973

00:32:10,708 --> 00:32:12,083

you want another group to be

974

00:32:12,083 --> 00:32:14,125

jealous and then say try to disprove them

975

00:32:14,125 --> 00:32:16,208

that's good because that'll

976

00:32:16,208 --> 00:32:18,541

prevent false positives false

977

00:32:18,541 --> 00:32:20,166

discoveries exactly as soon as there's

978

00:32:20,166 --> 00:32:21,375

something discovered that the

979

00:32:21,375 --> 00:32:22,916

next step is someone else to

980

00:32:22,916 --> 00:32:24,708

independently verify exactly so having

981

00:32:24,708 --> 00:32:25,500

someone with somewhat

982

00:32:25,500 --> 00:32:26,416

similar tools and ready to go

983

00:32:27,500 --> 00:32:29,166

would be a complete part of that puzzle

984

00:32:29,166 --> 00:32:30,875

to make that that scientific

985

00:32:30,875 --> 00:32:32,000

process yeah absolutely but

986

00:32:32,000 --> 00:32:34,291

the main difference is resources also

987

00:32:34,291 --> 00:32:35,583

Galileo project very very

988

00:32:35,583 --> 00:32:37,208

rich we're trying on new apex

989

00:32:37,208 --> 00:32:39,625

to get more more resources but I think

990

00:32:39,625 --> 00:32:41,791

what we we want to have

991

00:32:41,791 --> 00:32:43,000

complementary measurements

992

00:32:43,000 --> 00:32:45,000

not duplicate the exact same cameras

993

00:32:45,000 --> 00:32:46,583

exact same sensors I think

994

00:32:46,583 --> 00:32:48,500

that's crucial because then once

995

00:32:48,500 --> 00:32:51,208

we it's not it says things are only only

996

00:32:51,208 --> 00:32:53,000

trade secrets temporarily

997

00:32:53,000 --> 00:32:53,833

because if these groups are

998

00:32:54,041 --> 00:32:56,000

all scientific and they publish papers

999

00:32:56,000 --> 00:32:57,375

you know Galileo project has published

1000

00:32:57,375 --> 00:32:58,166

several papers we're

1001  
00:32:58,166 --> 00:33:01,291  
working on our first results paper then

1002  
00:33:01,291 --> 00:33:03,541  
you can see what the other

1003  
00:33:03,541 --> 00:33:05,291  
person did and see ah that was

1004  
00:33:05,291 --> 00:33:07,125  
a bad idea that didn't work hey that was

1005  
00:33:07,125 --> 00:33:08,708  
a good idea let's steal

1006  
00:33:08,708 --> 00:33:10,333  
that which is a good thing you

1007  
00:33:10,333 --> 00:33:12,541  
want scientific groups to look at each

1008  
00:33:12,541 --> 00:33:14,041  
other even if they're competing and say

1009  
00:33:14,041 --> 00:33:15,083  
you know what that's

1010  
00:33:15,083 --> 00:33:18,083  
a good idea we need to do that or that's

1011  
00:33:18,083 --> 00:33:19,458  
a bad idea let's not

1012  
00:33:19,458 --> 00:33:20,500  
repeat the same mistake they did

1013  
00:33:20,750 --> 00:33:22,666

and then we have this for cross

1014

00:33:22,666 --> 00:33:25,625

fertilization of good ideas so where

1015

00:33:25,625 --> 00:33:27,916

where is UAPX in this process

1016

00:33:27,916 --> 00:33:29,500

where where are you guys what's your

1017

00:33:29,500 --> 00:33:30,958

status right now so right now

1018

00:33:30,958 --> 00:33:32,333

we're still analyzing the data

1019

00:33:32,333 --> 00:33:34,500

from our first expedition even though

1020

00:33:34,500 --> 00:33:35,875

that was a long time ago

1021

00:33:35,875 --> 00:33:37,208

well let's talk about that yeah

1022

00:33:37,208 --> 00:33:39,500

let's let's do a little back just if you

1023

00:33:39,500 --> 00:33:40,875

can just so people aren't

1024

00:33:40,875 --> 00:33:42,291

familiar with the 30 second

1025

00:33:42,291 --> 00:33:46,708

background on that so on um uh UAPX we

1026  
00:33:46,708 --> 00:33:49,250  
had on our uh organization which as I

1027  
00:33:49,250 --> 00:33:49,458  
explained earlier we

1028  
00:33:49,625 --> 00:33:51,625  
have our goal of you know checking out

1029  
00:33:51,625 --> 00:33:53,625  
well what UAP are we we had an

1030  
00:33:53,625 --> 00:33:56,500  
expedition where we went to a

1031  
00:33:56,500 --> 00:33:59,750  
a supposed UAP hotspot more importantly

1032  
00:33:59,750 --> 00:34:01,291  
the site of the 2004

1033  
00:34:01,291 --> 00:34:03,166  
Nimitz encounter and that was um

1034  
00:34:03,166 --> 00:34:06,416  
off the coast of California uh on and

1035  
00:34:06,416 --> 00:34:08,750  
near Catalina Island so we

1036  
00:34:08,750 --> 00:34:10,083  
our expedition was funded

1037  
00:34:10,083 --> 00:34:11,958  
by uh Carolyn Corey and was part of a

1038  
00:34:11,958 --> 00:34:14,083

documentary movie called A Tear in the

1039

00:34:14,083 --> 00:34:15,458

Sky and in that movie

1040

00:34:15,666 --> 00:34:19,166

we had um a lot of sensors deployed on a

1041

00:34:19,166 --> 00:34:20,625

roof in Laguna Beach

1042

00:34:20,625 --> 00:34:21,833

California and then sensors on

1043

00:34:21,833 --> 00:34:25,333

Catalina Island and we found some

1044

00:34:25,333 --> 00:34:26,416

potentially interesting

1045

00:34:26,416 --> 00:34:30,208

things but the thing is the data

1046

00:34:30,208 --> 00:34:31,875

analysis taking a long time because we

1047

00:34:31,875 --> 00:34:33,500

are a very small group and an

1048

00:34:33,500 --> 00:34:35,375

all-volunteer effort

1049

00:34:35,375 --> 00:34:39,125

so we want to publish our results perhaps

1050

00:34:39,125 --> 00:34:40,583

more than one

1051  
00:34:40,583 --> 00:34:41,833  
publication dedicated to different

1052  
00:34:42,416 --> 00:34:43,708  
aspects of our work like our

1053  
00:34:43,708 --> 00:34:46,166  
instrumentation versus any potentially

1054  
00:34:46,166 --> 00:34:47,833  
anomalous results and so

1055  
00:34:47,833 --> 00:34:50,041  
right now we're in the process of trying

1056  
00:34:50,041 --> 00:34:53,208  
to finish writing a

1057  
00:34:53,208 --> 00:34:56,500  
first scientific paper but

1058  
00:34:56,500 --> 00:34:58,208  
it isn't just going to be about

1059  
00:34:58,208 --> 00:35:00,416  
instrumentation because we also have

1060  
00:35:00,416 --> 00:35:01,750  
results maybe there'll all

1061  
00:35:01,750 --> 00:35:03,166  
be null results where it didn't find

1062  
00:35:03,166 --> 00:35:03,833  
anything interesting but

1063  
00:35:03,833 --> 00:35:05,500

we might have found some

1064

00:35:05,500 --> 00:35:07,500

interesting things but we need to be

1065

00:35:07,500 --> 00:35:09,625

extremely careful anything we claim is

1066

00:35:09,625 --> 00:35:10,125

weird or interesting

1067

00:35:10,416 --> 00:35:13,500

we got to again go through our giant list

1068

00:35:13,500 --> 00:35:15,000

is it a bird is it a plane it

1069

00:35:15,000 --> 00:35:16,500

is a drone is it a helicopter

1070

00:35:16,500 --> 00:35:19,875

etc that takes a lot of time especially

1071

00:35:19,875 --> 00:35:21,541

when you have several

1072

00:35:21,541 --> 00:35:24,291

hundred hours of videos of mostly

1073

00:35:24,291 --> 00:35:26,916

clouds rolling over the channel that's a

1074

00:35:26,916 --> 00:35:28,708

very difficult problem

1075

00:35:28,708 --> 00:35:30,916

even with ai even with image

1076  
00:35:30,916 --> 00:35:33,500  
processing that's a very hard problem so

1077  
00:35:33,500 --> 00:35:34,166  
that's why even though it's

1078  
00:35:34,166 --> 00:35:35,666  
been almost two years we still

1079  
00:35:36,000 --> 00:35:37,583  
we're not ready but we're getting close

1080  
00:35:37,583 --> 00:35:39,208  
to publishing hopefully our

1081  
00:35:39,208 --> 00:35:40,625  
first our first paper on our

1082  
00:35:40,625 --> 00:35:43,083  
findings interesting it's fine with the

1083  
00:35:43,083 --> 00:35:44,458  
answer is no is but is there

1084  
00:35:44,458 --> 00:35:46,375  
any anything uh you can talk

1085  
00:35:46,375 --> 00:35:52,083  
about as far as um your findings or um

1086  
00:35:52,083 --> 00:35:53,625  
well i guess you already did

1087  
00:35:53,625 --> 00:35:55,166  
i'm trying to push a little

1088  
00:35:55,166 --> 00:35:57,291

bit but i don't want to oh yeah sure no

1089

00:35:57,291 --> 00:35:59,000

we can i can i can talk

1090

00:35:59,000 --> 00:36:00,541

about our most interesting

1091

00:36:01,375 --> 00:36:03,333

our i can try to i can focus on our

1092

00:36:03,333 --> 00:36:05,291

number one most interesting event it's

1093

00:36:05,291 --> 00:36:06,166

been covered publicly

1094

00:36:06,166 --> 00:36:08,791

you can go on youtube and look at our scu

1095

00:36:08,791 --> 00:36:10,125

talk that's a scientific

1096

00:36:10,125 --> 00:36:11,541

coalition for uap studies

1097

00:36:11,541 --> 00:36:13,875

or the limena conference and this is also

1098

00:36:13,875 --> 00:36:14,458

an important part of

1099

00:36:14,458 --> 00:36:16,333

the scientific process

1100

00:36:16,333 --> 00:36:17,791

especially on a controversial topic like

1101

00:36:17,791 --> 00:36:19,458

this so many people

1102

00:36:19,458 --> 00:36:20,458

disagree and say we should have

1103

00:36:20,458 --> 00:36:21,791

published we should publish a paper first

1104

00:36:21,791 --> 00:36:22,708

before we talk about

1105

00:36:22,708 --> 00:36:24,250

anything but there's two reasons why

1106

00:36:24,250 --> 00:36:27,250

we did it number one is we do have an

1107

00:36:27,250 --> 00:36:29,083

incredible spirit of openness

1108

00:36:29,083 --> 00:36:29,666

we haven't shared all our data

1109

00:36:30,416 --> 00:36:31,541

not because we don't want to because

1110

00:36:31,541 --> 00:36:33,666

there's many terabytes of data so it's

1111

00:36:33,666 --> 00:36:35,041

really really hard but we

1112

00:36:35,041 --> 00:36:37,500

want to share what the world what we

1113

00:36:37,500 --> 00:36:39,000

think our findings are

1114

00:36:39,000 --> 00:36:40,583

another important reason why we want

1115

00:36:40,583 --> 00:36:43,083

to talk about it even before we publish a

1116

00:36:43,083 --> 00:36:44,333

scientific paper is then we

1117

00:36:44,333 --> 00:36:46,000

get criticism that's great

1118

00:36:46,000 --> 00:36:48,291

because then get the early criticism and

1119

00:36:48,291 --> 00:36:49,791

still later and then we get

1120

00:36:49,791 --> 00:36:51,250

we add to our list of things

1121

00:36:51,250 --> 00:36:53,458

it could be because someone will watch

1122

00:36:53,458 --> 00:36:55,500

our talk and say oh that's a flock of

1123

00:36:55,500 --> 00:36:56,083

seagulls or oh that's

1124

00:36:56,333 --> 00:36:59,833

a this that's a that's that's good we can

1125

00:36:59,833 --> 00:37:01,708

test that idea we don't

1126

00:37:01,708 --> 00:37:03,458

like on uapx we don't like

1127

00:37:03,458 --> 00:37:06,250

truth by proclamation if someone's got an

1128

00:37:06,250 --> 00:37:07,791

idea for what we saw we're

1129

00:37:07,791 --> 00:37:09,291

going to test it we're going to

1130

00:37:09,291 --> 00:37:12,291

try to replicate the that situation kind

1131

00:37:12,291 --> 00:37:14,291

of like mick west is famous

1132

00:37:14,291 --> 00:37:15,958

for doing in his garage we're

1133

00:37:15,958 --> 00:37:18,000

going to do that not in garage but in my

1134

00:37:18,000 --> 00:37:19,916

lab and we're going to

1135

00:37:19,916 --> 00:37:20,875

replicate all the ideas we haven't

1136

00:37:21,916 --> 00:37:24,791

finished doing that and so that's why we

1137

00:37:24,791 --> 00:37:26,375

want to before we we publish

1138

00:37:26,375 --> 00:37:27,583

we want to test but i can tell

1139

00:37:27,583 --> 00:37:30,375

you about our number one most interesting

1140

00:37:30,375 --> 00:37:33,000

potential anomaly which was a

1141

00:37:33,000 --> 00:37:34,375

there was a dark spot we saw

1142

00:37:34,375 --> 00:37:37,583

in one of our in one of our cameras and

1143

00:37:37,583 --> 00:37:39,541

and this dark spot is there

1144

00:37:39,541 --> 00:37:42,000

on several videos sometimes it

1145

00:37:42,000 --> 00:37:44,333

has dots in it sometimes it doesn't have

1146

00:37:44,333 --> 00:37:46,208

dots in it and we don't know

1147

00:37:46,208 --> 00:37:46,875

what it is so we're testing

1148

00:37:47,666 --> 00:37:50,041

things like could it be a fly on the

1149

00:37:50,041 --> 00:37:52,000

camera lens could it be an artifact in

1150

00:37:52,000 --> 00:37:54,500

the camera but all the

1151  
00:37:54,500 --> 00:37:57,750  
tests we perform so far none of the

1152  
00:37:57,750 --> 00:37:59,083  
mundane explanations seem

1153  
00:37:59,083 --> 00:38:00,958  
to fit so i know it sounds

1154  
00:38:00,958 --> 00:38:02,541  
boring when i say it that way a dark spot

1155  
00:38:02,541 --> 00:38:05,000  
in a camera in the movie

1156  
00:38:05,000 --> 00:38:06,666  
um it's called a wormhole or

1157  
00:38:06,666 --> 00:38:09,458  
wormhole like anomaly but the thing is we

1158  
00:38:09,458 --> 00:38:11,000  
have to be very careful of

1159  
00:38:11,000 --> 00:38:14,083  
these um these really um really

1160  
00:38:15,125 --> 00:38:17,750  
kind of crazy explanations where we don't

1161  
00:38:17,750 --> 00:38:19,208  
have the scientific evidence

1162  
00:38:19,208 --> 00:38:20,833  
for believe me i would like

1163  
00:38:20,833 --> 00:38:23,416

nothing more than for the black hole the

1164

00:38:23,416 --> 00:38:25,333

hole in the clouds or dark

1165

00:38:25,333 --> 00:38:26,583

spot in the camera that we

1166

00:38:26,583 --> 00:38:29,291

sought to be a wormhole but that's a very

1167

00:38:29,291 --> 00:38:30,375

high bar of evidence no

1168

00:38:30,375 --> 00:38:31,875

one's seen a wormhole before we

1169

00:38:31,875 --> 00:38:35,041

don't even know how one would behave like

1170

00:38:35,041 --> 00:38:36,000

mathematically how that

1171

00:38:36,000 --> 00:38:37,500

would translate into the real

1172

00:38:37,500 --> 00:38:41,291

world and so we we cannot call it a

1173

00:38:41,291 --> 00:38:42,625

wormhole even though that makes it sound more exciting but it's

1174

00:38:43,500 --> 00:38:47,166

a it's a dark spot in our camera and

1175

00:38:47,166 --> 00:38:50,291

we're trying to determine is it real is

1176

00:38:50,291 --> 00:38:51,875

it a hole in the clouds

1177

00:38:51,875 --> 00:38:54,583

that the camera saw in our expedition or

1178

00:38:54,583 --> 00:38:56,666

is it is a glitch in the camera

1179

00:38:56,666 --> 00:38:57,583

everything we've we've

1180

00:38:57,583 --> 00:39:00,000

we've looked at so far seems to imply

1181

00:39:00,000 --> 00:39:02,041

it's some it's a real hole

1182

00:39:02,041 --> 00:39:03,958

in the clouds and not a not a

1183

00:39:03,958 --> 00:39:05,708

glitch in the camera or nearby but we

1184

00:39:05,708 --> 00:39:07,500

need to be very careful and test all the different possibilities

1185

00:39:08,666 --> 00:39:11,541

but really that's our number one most

1186

00:39:11,541 --> 00:39:14,791

exciting um uh event that we're

1187

00:39:14,791 --> 00:39:16,625

continuing to study and that's

1188

00:39:16,625 --> 00:39:19,166

why the um so the movie is called a tear

1189

00:39:19,166 --> 00:39:20,583

in the sky actually it was

1190

00:39:20,583 --> 00:39:22,375

named before that actually so

1191

00:39:22,375 --> 00:39:25,541

so i think um carolyn could claim to have

1192

00:39:25,541 --> 00:39:26,791

been i don't know psychic

1193

00:39:26,791 --> 00:39:29,250

and like saw you know remote

1194

00:39:29,250 --> 00:39:31,291

viewed the future or or whatever because

1195

00:39:31,291 --> 00:39:32,958

it was named before we

1196

00:39:32,958 --> 00:39:33,833

before we observed that but that

1197

00:39:34,708 --> 00:39:37,541

really is our most exciting thing we saw

1198

00:39:37,541 --> 00:39:39,291

some other things but as

1199

00:39:39,291 --> 00:39:40,791

explained in some of my other

1200

00:39:40,791 --> 00:39:42,875

already um my and professor kevin

1201

00:39:42,875 --> 00:39:45,125

canute's youtube presentations that we

1202

00:39:45,125 --> 00:39:46,333

were able to explain a lot of

1203

00:39:46,333 --> 00:39:50,083

the other anomalies as as camera noise or

1204

00:39:50,083 --> 00:39:51,083

one example is the

1205

00:39:51,083 --> 00:39:52,833

international space station

1206

00:39:52,833 --> 00:39:55,083

and i think that's really important

1207

00:39:55,083 --> 00:39:57,041

because if you don't look

1208

00:39:57,041 --> 00:39:59,208

at your own data critically

1209

00:39:59,208 --> 00:40:01,041

someone else will do it for you and then

1210

00:40:01,041 --> 00:40:02,375

make fun of you right

1211

00:40:02,375 --> 00:40:03,750

afterwards so we are we try to

1212

00:40:04,250 --> 00:40:07,208

be very uh very very self skeptical and

1213

00:40:07,208 --> 00:40:08,583

critical of our data we

1214

00:40:08,583 --> 00:40:11,166

don't claim something is weird

1215

00:40:11,166 --> 00:40:15,250

unless we've tested multiple mundane

1216

00:40:15,250 --> 00:40:16,250

hypotheses and found them

1217

00:40:16,250 --> 00:40:18,416

and found them lacking is you

1218

00:40:18,416 --> 00:40:22,833

a px in a position to draw firm

1219

00:40:22,833 --> 00:40:24,458

conclusions on their data is that what

1220

00:40:24,458 --> 00:40:25,708

your goal is or is it

1221

00:40:25,708 --> 00:40:27,541

really more to observe what's out there

1222

00:40:27,541 --> 00:40:29,208

and report on the data

1223

00:40:29,208 --> 00:40:30,000

without really looking into

1224

00:40:30,666 --> 00:40:33,541

uh some of the more subjective and and

1225

00:40:33,541 --> 00:40:35,875

second tier analysis such as origin

1226

00:40:35,875 --> 00:40:36,708

things of that nature

1227

00:40:36,708 --> 00:40:37,916

because one of the problems i always hear

1228

00:40:37,916 --> 00:40:41,041

in this conversation uh is

1229

00:40:41,041 --> 00:40:42,250

people immediately jump to

1230

00:40:42,250 --> 00:40:43,916

conclusions as they're considering the

1231

00:40:43,916 --> 00:40:45,375

data immediately and so

1232

00:40:45,375 --> 00:40:46,708

it's and that drives them

1233

00:40:46,708 --> 00:40:48,750

either into or away from the topic to

1234

00:40:48,750 --> 00:40:50,583

some degree yes that's a

1235

00:40:50,583 --> 00:40:52,958

great question so yeah we want to

1236

00:40:52,958 --> 00:40:55,375

stay away from jumping to conclusions

1237

00:40:55,375 --> 00:40:57,000

that doesn't mean we never want a

1238

00:40:57,000 --> 00:40:58,416

conclusion we're we're in it

1239

00:40:58,625 --> 00:41:02,375

for the long game the long haul maybe

1240

00:41:02,375 --> 00:41:03,708

someday you know we'll get

1241

00:41:03,708 --> 00:41:05,791

a high or or gal air project

1242

00:41:05,791 --> 00:41:07,333

because somebody else will get a high

1243

00:41:07,333 --> 00:41:08,500

resolution photograph of you

1244

00:41:08,500 --> 00:41:09,833

know i don't know flying saucer

1245

00:41:09,833 --> 00:41:12,541

an alien waving from the window so it is

1246

00:41:12,541 --> 00:41:14,000

always it's the goal to

1247

00:41:14,000 --> 00:41:15,583

eventually want to get solid

1248

00:41:15,583 --> 00:41:18,000

conclusions so so on uapx we do want

1249

00:41:18,000 --> 00:41:19,708

solid conclusions but not

1250

00:41:19,708 --> 00:41:21,583

not not yet and probably

1251

00:41:21,583 --> 00:41:24,250

not for a while so initially the idea is

1252

00:41:24,250 --> 00:41:25,958

you know take some data

1253

00:41:25,958 --> 00:41:28,166

figure out what things are not

1254

00:41:28,500 --> 00:41:31,291

right go through the mundane hypotheses

1255

00:41:31,291 --> 00:41:33,750

which is it's which is a challenge

1256

00:41:33,750 --> 00:41:35,208

because you never know

1257

00:41:35,208 --> 00:41:37,833

if there was that one mundane hypothesis

1258

00:41:37,833 --> 00:41:39,208

you forgot to consider

1259

00:41:39,208 --> 00:41:40,583

that explains your data as

1260

00:41:40,583 --> 00:41:43,541

boring and ordinary so it's a very very

1261

00:41:43,541 --> 00:41:45,500

difficult process and it's a combination

1262

00:41:45,500 --> 00:41:46,750

sort of of deductive

1263

00:41:46,750 --> 00:41:48,666

and inductive reasoning of different

1264

00:41:48,666 --> 00:41:50,375

kinds of reasoning and

1265

00:41:50,375 --> 00:41:52,458

and so the the goal is solid

1266

00:41:53,125 --> 00:41:55,500

conclusions like you know it's an

1267

00:41:55,500 --> 00:41:57,833

advanced craft or it's this natural

1268

00:41:57,833 --> 00:42:00,916

phenomenon but not right away

1269

00:42:00,916 --> 00:42:02,625

not while we're still getting our sea

1270

00:42:02,625 --> 00:42:04,333

legs you know so to speak you know i

1271

00:42:04,333 --> 00:42:05,541

could use navy analogy

1272

00:42:05,541 --> 00:42:07,875

since you know gary verise is the former

1273

00:42:07,875 --> 00:42:10,458

navy guy and president of of uapx but

1274

00:42:10,458 --> 00:42:12,083

basically we want to

1275

00:42:12,083 --> 00:42:15,791

first feel things out get to know our our

1276

00:42:15,791 --> 00:42:17,416

instruments our sensors make

1277

00:42:17,416 --> 00:42:18,958

sure they're well calibrated

1278

00:42:19,250 --> 00:42:21,625

not jump to any conclusions and that

1279

00:42:21,625 --> 00:42:23,833

temptation is already was as there we

1280

00:42:23,833 --> 00:42:24,750

already started doing

1281

00:42:24,750 --> 00:42:26,875

that a little bit with you know we we

1282

00:42:26,875 --> 00:42:28,458

call it we called our dark spot a

1283

00:42:28,458 --> 00:42:29,541

wormhole like anomaly

1284

00:42:29,541 --> 00:42:31,458

which was a compromise between calling it

1285

00:42:31,458 --> 00:42:33,416

a wormhole versus calling it

1286

00:42:33,416 --> 00:42:35,000

you know a boring name like

1287

00:42:35,000 --> 00:42:37,500

it's a dark dark spot in the camera hole

1288

00:42:37,500 --> 00:42:38,875

in the cloud so the

1289

00:42:38,875 --> 00:42:40,791

temptation is always there so it's

1290

00:42:40,791 --> 00:42:44,041

a constant battle because scientists

1291

00:42:44,041 --> 00:42:45,000

we're just we're human

1292

00:42:45,000 --> 00:42:46,166

beings we're not vulcans like on

1293

00:42:46,541 --> 00:42:49,125

star trek or lieutenant commander data

1294

00:42:49,125 --> 00:42:50,625

initially without emotions

1295

00:42:50,625 --> 00:42:52,708

we have emotions too i have

1296

00:42:52,708 --> 00:42:55,666

emotions i sometimes am very tempted to

1297

00:42:55,666 --> 00:42:57,708

say oh my gosh let's you

1298

00:42:57,708 --> 00:42:59,875

know go find evidence of alien

1299

00:42:59,875 --> 00:43:01,375

spacecraft but that's going to be really

1300

00:43:01,375 --> 00:43:04,041

hard and so we want to balance that

1301  
00:43:04,041 --> 00:43:05,541  
excitement with some

1302  
00:43:05,541 --> 00:43:09,333  
hard nosed skepticism and and data

1303  
00:43:09,333 --> 00:43:10,583  
without becoming over

1304  
00:43:10,583 --> 00:43:12,916  
skeptical and dumping anomalies

1305  
00:43:13,333 --> 00:43:15,500  
and dumping data we don't like if

1306  
00:43:15,500 --> 00:43:17,833  
something's weird we're going to say oh

1307  
00:43:17,833 --> 00:43:19,250  
this is weird because we

1308  
00:43:19,250 --> 00:43:21,333  
test it and it's not this this this this

1309  
00:43:21,333 --> 00:43:22,416  
this we're not going to

1310  
00:43:22,416 --> 00:43:24,291  
write because we reject all

1311  
00:43:24,291 --> 00:43:25,708  
those things therefore it's an alien

1312  
00:43:25,708 --> 00:43:26,541  
spacecraft we're not going

1313  
00:43:26,541 --> 00:43:28,583

to be able to do that maybe

1314

00:43:28,583 --> 00:43:30,583

someday but we're very far from being

1315

00:43:30,583 --> 00:43:31,708

able to do that yet we're

1316

00:43:31,708 --> 00:43:33,875

just getting started i've heard

1317

00:43:33,875 --> 00:43:35,791

similar sentiment from the galler project

1318

00:43:35,791 --> 00:43:36,541

to a certain degree and

1319

00:43:36,541 --> 00:43:38,333

you know just you know set

1320

00:43:38,333 --> 00:43:39,916

your expectations that's where this

1321

00:43:39,916 --> 00:43:42,083

conversation is now so none of the

1322

00:43:42,083 --> 00:43:42,791

projects here they're

1323

00:43:43,208 --> 00:43:46,000

standing up we're really calibrating and

1324

00:43:46,000 --> 00:43:47,125

getting to better understand

1325

00:43:47,125 --> 00:43:48,458

what's in front of us we're

1326

00:43:48,458 --> 00:43:50,833

not necessarily expecting to grab a

1327

00:43:50,833 --> 00:43:52,541

snapshot in the you know next six months

1328

00:43:52,541 --> 00:43:54,083

this is a long process

1329

00:43:54,083 --> 00:43:56,500

exactly we've considered ourselves

1330

00:43:56,500 --> 00:43:59,416

extremely lucky on uapx that we got at

1331

00:43:59,416 --> 00:44:00,791

least one potentially

1332

00:44:00,791 --> 00:44:02,625

interesting event again you know i don't

1333

00:44:02,625 --> 00:44:03,958

want to call it a wormhole

1334

00:44:03,958 --> 00:44:05,250

but that would be amazing if

1335

00:44:05,250 --> 00:44:07,375

that's what it was i don't think it is

1336

00:44:07,375 --> 00:44:08,750

we don't have evidence yet

1337

00:44:08,750 --> 00:44:09,583

that that that's what it is

1338

00:44:09,875 --> 00:44:12,500

that's a high bar but at least we have

1339

00:44:12,500 --> 00:44:14,750

one anomaly that is still refusing

1340

00:44:14,750 --> 00:44:16,208

explanation that's exciting

1341

00:44:16,208 --> 00:44:18,125

and like i said most of the other

1342

00:44:18,125 --> 00:44:20,083

so-called anomalies we saw

1343

00:44:20,083 --> 00:44:21,500

turn out to have explanations

1344

00:44:21,500 --> 00:44:23,875

but we consider ourselves extremely lucky

1345

00:44:23,875 --> 00:44:24,708

because how can you

1346

00:44:24,708 --> 00:44:26,375

just go out for a week

1347

00:44:26,375 --> 00:44:28,250

you know to the location where there were

1348

00:44:28,250 --> 00:44:29,500

some tic tacs in 2004

1349

00:44:29,500 --> 00:44:31,333

that was 2004 what are they

1350

00:44:31,333 --> 00:44:32,833

what are they hanging around right it

1351

00:44:32,833 --> 00:44:34,625

seems so unlikely that we

1352

00:44:34,625 --> 00:44:35,750

would catch something so we

1353

00:44:36,291 --> 00:44:38,375

consider ourselves supremely lucky

1354

00:44:38,375 --> 00:44:40,583

because we we we especially the

1355

00:44:40,583 --> 00:44:42,666

scientists on uapx me and uh

1356

00:44:42,666 --> 00:44:44,916

um and and kevin who was in the the movie

1357

00:44:44,916 --> 00:44:46,541

with me were like what if we

1358

00:44:46,541 --> 00:44:48,000

find nothing which is great

1359

00:44:48,000 --> 00:44:50,458

for science because calibrating the

1360

00:44:50,458 --> 00:44:52,000

instruments not so great for

1361

00:44:52,000 --> 00:44:55,041

a movie and so we we consider

1362

00:44:55,041 --> 00:44:57,250

us as extremely lucky that we saw

1363

00:44:57,250 --> 00:44:59,500

something we're not only that makes the

1364

00:44:59,500 --> 00:45:00,250

the film more exciting

1365

00:45:00,500 --> 00:45:03,333

than um a tear in the sky but is also

1366

00:45:03,333 --> 00:45:05,375

worthy of years of scientific

1367

00:45:05,375 --> 00:45:06,000

investigation afterwards

1368

00:45:06,000 --> 00:45:08,166

let's try to figure out what the heck did

1369

00:45:08,166 --> 00:45:09,708

we did we see because we

1370

00:45:09,708 --> 00:45:12,166

might have end up ended up being

1371

00:45:12,166 --> 00:45:15,375

just exclusively a calibration expedition

1372

00:45:15,375 --> 00:45:17,500

which would also be okay

1373

00:45:17,500 --> 00:45:19,208

how do you so i know there's

1374

00:45:19,208 --> 00:45:21,458

some academic journals that this could

1375

00:45:21,458 --> 00:45:22,500

these results could

1376

00:45:22,500 --> 00:45:24,750

potentially um be published and

1377

00:45:24,750 --> 00:45:27,791

one of them you mentioned is is limena um

1378

00:45:27,791 --> 00:45:28,875

i'm not sure how familiar you

1379

00:45:28,875 --> 00:45:29,458

are with them but if you are

1380

00:45:29,875 --> 00:45:31,708

familiar might be hopefully get a little

1381

00:45:31,708 --> 00:45:32,791

background because my understanding is

1382

00:45:32,791 --> 00:45:34,833

this is a anomaly or

1383

00:45:34,833 --> 00:45:40,208

or perhaps uap focused paper or um um not

1384

00:45:40,208 --> 00:45:42,625

paper but um what's the right term

1385

00:45:42,625 --> 00:45:43,500

journal journal thank

1386

00:45:43,500 --> 00:45:47,041

you it's a it's a uap or anomaly based

1387

00:45:47,041 --> 00:45:49,416

journal um which i think has

1388

00:45:49,416 --> 00:45:51,166

its pros and cons uh one of

1389

00:45:51,166 --> 00:45:55,166

the pros is that it's it solidifies its

1390

00:45:55,166 --> 00:45:56,125

position and starts

1391

00:45:56,125 --> 00:45:58,416

to coalesce perhaps um

1392

00:45:58,791 --> 00:46:00,916

coincident cases or similar cases under a

1393

00:46:00,916 --> 00:46:02,416

banner that can be looked

1394

00:46:02,416 --> 00:46:04,666

at from outside in yeah but

1395

00:46:04,666 --> 00:46:06,791

the the con of it also is that it's

1396

00:46:06,791 --> 00:46:10,083

outside of mainstream academia still uh

1397

00:46:10,083 --> 00:46:10,958

and might get looked

1398

00:46:10,958 --> 00:46:13,375

at differently um how do you think about

1399

00:46:13,375 --> 00:46:15,333

that that pro and con when you think

1400

00:46:15,333 --> 00:46:16,416

about publishing your

1401  
00:46:16,416 --> 00:46:19,083  
results for uapx that's an excellent

1402  
00:46:19,083 --> 00:46:22,250  
question so this is why actually we're

1403  
00:46:22,250 --> 00:46:23,375  
not planning planning

1404  
00:46:23,375 --> 00:46:25,208  
on publishing a first paper in limena and

1405  
00:46:25,208 --> 00:46:26,166  
i can say that because i'm

1406  
00:46:26,166 --> 00:46:27,375  
great friends with the chief

1407  
00:46:27,791 --> 00:46:29,333  
editor mike syphonia i've already told

1408  
00:46:29,333 --> 00:46:31,541  
him this and and i he and

1409  
00:46:31,541 --> 00:46:32,666  
i already explained no hard

1410  
00:46:32,666 --> 00:46:35,166  
felix we support him and some of our

1411  
00:46:35,166 --> 00:46:36,375  
other some of my colleagues

1412  
00:46:36,375 --> 00:46:37,791  
are going to write papers for

1413  
00:46:37,791 --> 00:46:42,375

limena but for the first result from uapx

1414

00:46:42,375 --> 00:46:44,500

we all have agreed on uapx

1415

00:46:44,500 --> 00:46:46,125

we need to go to something

1416

00:46:46,125 --> 00:46:48,541

established again there are pros and cons

1417

00:46:48,541 --> 00:46:50,666

we will absolutely probably eventually

1418

00:46:50,666 --> 00:46:52,000

end up with multiple

1419

00:46:52,541 --> 00:46:56,208

papers in limena but it's too new so the

1420

00:46:56,208 --> 00:46:57,000

reason why we want to go

1421

00:46:57,000 --> 00:46:58,250

to something established

1422

00:46:58,250 --> 00:47:01,375

because we don't want to hear critics

1423

00:47:01,375 --> 00:47:03,458

skeptics debunkers say oh

1424

00:47:03,458 --> 00:47:04,958

that doesn't count that's in

1425

00:47:04,958 --> 00:47:07,041

some no-name journal which again to be

1426

00:47:07,041 --> 00:47:08,250

fair to mike he's going to

1427

00:47:08,250 --> 00:47:09,666

work his way up to try to make

1428

00:47:09,666 --> 00:47:11,000

it a big important thing but he's

1429

00:47:11,000 --> 00:47:12,500

starting at zero everyone

1430

00:47:12,500 --> 00:47:14,333

starts at zero if you found a new

1431

00:47:14,333 --> 00:47:16,291

journal you start at zero you're not

1432

00:47:16,291 --> 00:47:18,208

famous you're not considered rigorous or

1433

00:47:18,208 --> 00:47:18,625

important yet everyone

1434

00:47:19,000 --> 00:47:20,583

starts they're the most important

1435

00:47:20,583 --> 00:47:22,083

journals in the world had to start

1436

00:47:22,083 --> 00:47:23,375

somewhere from day zero you

1437

00:47:23,375 --> 00:47:26,625

know even science and nature magazine so

1438

00:47:26,625 --> 00:47:28,541

the idea is we want to go

1439

00:47:28,541 --> 00:47:30,208

for something in astronomy and

1440

00:47:30,208 --> 00:47:32,125

aerospace like the galler project has

1441

00:47:32,125 --> 00:47:33,458

done i'll be honest you know we were a

1442

00:47:33,458 --> 00:47:34,083

little jealous because

1443

00:47:34,083 --> 00:47:35,666

we had results already we could have

1444

00:47:35,666 --> 00:47:36,833

published you know and stuff

1445

00:47:36,833 --> 00:47:38,291

but the thing is that's not

1446

00:47:38,291 --> 00:47:41,291

important these kinds of competitive

1447

00:47:41,291 --> 00:47:42,833

feelings and professional jealousies

1448

00:47:46,416 --> 00:47:43,833

there's no room for this

1449

00:47:46,416 --> 00:47:48,500

galler project being first

1450

00:47:48,500 --> 00:47:50,500

has a massive advantage for us

1451  
00:47:50,500 --> 00:47:52,750  
so we can we can be be petty and talk

1452  
00:47:52,750 --> 00:47:53,916  
about how well we have

1453  
00:47:53,916 --> 00:47:55,750  
actual results and we and we

1454  
00:47:55,750 --> 00:47:57,375  
try to publish them first but we just

1455  
00:47:57,375 --> 00:47:59,125  
didn't have time for installing the paper

1456  
00:47:59,125 --> 00:48:00,625  
but a more important

1457  
00:48:00,625 --> 00:48:02,541  
positive way to look at this is because

1458  
00:48:02,541 --> 00:48:03,916  
galler project has already

1459  
00:48:03,916 --> 00:48:05,416  
started publishing papers

1460  
00:48:05,416 --> 00:48:08,125  
now it's easier for uapx so this is a

1461  
00:48:08,125 --> 00:48:09,166  
positive because now when

1462  
00:48:09,166 --> 00:48:10,333  
uapx tries to publish we'll say

1463  
00:48:10,708 --> 00:48:13,208

hey hey you publish their paper oh you

1464

00:48:13,208 --> 00:48:13,791

just published them

1465

00:48:13,791 --> 00:48:15,000

because they're harvard and we're

1466

00:48:15,000 --> 00:48:16,916

you know a lower university that's not

1467

00:48:16,916 --> 00:48:18,375

fair that's not ethical so

1468

00:48:18,375 --> 00:48:20,083

that's great now we can cite the

1469

00:48:20,083 --> 00:48:23,250

galler project papers as a reference in

1470

00:48:23,250 --> 00:48:24,541

our bibliography and

1471

00:48:24,541 --> 00:48:27,375

say and and point to them

1472

00:48:27,375 --> 00:48:31,333

as paving the way and so basically thanks

1473

00:48:31,333 --> 00:48:32,875

to someone of avi

1474

00:48:32,875 --> 00:48:35,458

lobes incredible reputation

1475

00:48:36,666 --> 00:48:40,041

he's helping break that ceiling and now

1476

00:48:40,041 --> 00:48:41,458

it's he's he's made the

1477

00:48:41,458 --> 00:48:44,791

uapx's path easier actually

1478

00:48:44,791 --> 00:48:46,666

um it's he's making it easier on his

1479

00:48:46,666 --> 00:48:48,125

competitors but that's okay i hope he

1480

00:48:48,125 --> 00:48:49,000

feels okay about that

1481

00:48:49,000 --> 00:48:51,000

because before galler project published

1482

00:48:51,000 --> 00:48:51,916

man we would have had

1483

00:48:51,916 --> 00:48:53,583

probably hell of a time but we

1484

00:48:53,583 --> 00:48:55,333

want what we want to do is we want to aim

1485

00:48:55,333 --> 00:48:57,708

for similar caliber of

1486

00:48:57,708 --> 00:48:58,833

journals i'm not saying

1487

00:48:58,833 --> 00:49:02,000

necessarily the identical uh journals but

1488

00:49:02,000 --> 00:49:02,958

we want to aim for the

1489

00:49:02,958 --> 00:49:03,208

same caliber where galler

1490

00:49:04,250 --> 00:49:07,750

project is publishing because we want to

1491

00:49:07,750 --> 00:49:09,583

establish uap by looking at

1492

00:49:09,583 --> 00:49:11,375

by starting out by trying to

1493

00:49:11,375 --> 00:49:14,416

publish in journals that are very well

1494

00:49:14,416 --> 00:49:16,583

established already everyone knows

1495

00:49:16,583 --> 00:49:18,083

they're real they're not

1496

00:49:18,083 --> 00:49:21,125

pseudoscientific they're not woo they're

1497

00:49:21,125 --> 00:49:22,416

not crackpot because

1498

00:49:22,416 --> 00:49:24,125

they've been around for 20-30

1499

00:49:24,125 --> 00:49:26,041

years and are already have a high

1500

00:49:26,041 --> 00:49:27,750

reputation either in aerospace or astronomy or similar

1501  
00:49:29,125 --> 00:49:32,291  
field like that so that's our goal very

1502  
00:49:32,291 --> 00:49:34,458  
cool awesome how else do

1503  
00:49:34,458 --> 00:49:35,750  
we move this conversation

1504  
00:49:35,750 --> 00:49:39,166  
forward outside of just detection and

1505  
00:49:39,166 --> 00:49:41,250  
sensing you know are there other areas

1506  
00:49:41,250 --> 00:49:42,750  
where we could apply

1507  
00:49:42,750 --> 00:49:44,791  
our knowledge and our technology to

1508  
00:49:44,791 --> 00:49:45,958  
increase our understanding

1509  
00:49:45,958 --> 00:49:48,041  
outside of looking for where

1510  
00:49:48,041 --> 00:49:51,958  
something is in the sky um i'm not sure

1511  
00:49:51,958 --> 00:49:53,500  
that's a very open-ended

1512  
00:49:53,500 --> 00:49:54,333  
question um you mean like in terms

1513  
00:49:56,375 --> 00:49:59,250

of like maybe a culture the cultural

1514

00:49:59,250 --> 00:50:01,708

sphere that's one we could look at it

1515

00:50:01,708 --> 00:50:02,500

from a cultural sphere we

1516

00:50:02,500 --> 00:50:04,333

could look at other avenues of

1517

00:50:04,333 --> 00:50:05,458

technological exploration

1518

00:50:05,458 --> 00:50:08,125

outside of you know remote sensing

1519

00:50:08,125 --> 00:50:11,208

um against the sky perhaps or or in space

1520

00:50:11,208 --> 00:50:13,750

there is a crazy i i i can

1521

00:50:13,750 --> 00:50:15,041

say one crazy thing we can

1522

00:50:15,041 --> 00:50:18,541

we can edit it out later but outside of

1523

00:50:18,541 --> 00:50:19,041

remote sensing of the sky you know you know one of the

1524

00:50:21,750 --> 00:50:24,958

obviously the most common hypotheses for

1525

00:50:24,958 --> 00:50:27,291

uap is that their advanced

1526

00:50:27,291 --> 00:50:28,958

spacecraft and not necessarily

1527

00:50:28,958 --> 00:50:30,916

human ones you know it's such a common

1528

00:50:30,916 --> 00:50:33,333

hypothesis that we can't avoid it and i

1529

00:50:33,333 --> 00:50:34,458

think that's okay to

1530

00:50:34,458 --> 00:50:36,500

talk about and is getting increasingly

1531

00:50:36,500 --> 00:50:38,291

socially acceptable but on

1532

00:50:38,291 --> 00:50:40,291

that aspect there are all those

1533

00:50:40,291 --> 00:50:41,625

there have been all these claims you know

1534

00:50:41,625 --> 00:50:43,000

of alien abduction we stay

1535

00:50:43,000 --> 00:50:44,166

away from that uapx because

1536

00:50:44,166 --> 00:50:46,208

we're focused on remote sensing

1537

00:50:46,208 --> 00:50:46,416

nevertheless i have an opinion on that which is because

1538

00:50:46,666 --> 00:50:51,000

i i think this is where you go like

1539

00:50:51,000 --> 00:50:52,166

something other than remote

1540

00:50:52,166 --> 00:50:53,166

sensing of the sky right this

1541

00:50:53,166 --> 00:50:56,250

is not yeah good sky yeah so i i really

1542

00:50:56,250 --> 00:50:59,125

it still censors though and that is

1543

00:50:59,125 --> 00:51:00,000

always people who claim

1544

00:51:00,000 --> 00:51:02,625

to have be repeat alien abductees we we

1545

00:51:02,625 --> 00:51:05,041

laugh but instead of

1546

00:51:05,041 --> 00:51:07,208

discounting crazy hypotheses as a

1547

00:51:07,208 --> 00:51:09,625

scientist i'm like let's test it i would

1548

00:51:09,625 --> 00:51:11,250

love to instrument and people have

1549

00:51:11,250 --> 00:51:12,083

claimed this has already

1550

00:51:12,083 --> 00:51:12,416

happened i'm seeing any scientific publications of this people claim to be repeat abductees all

1551  
00:51:15,000 --> 00:51:18,208  
right put a camera in their bedroom like

1552  
00:51:18,208 --> 00:51:20,333  
i'm all for getting data

1553  
00:51:20,333 --> 00:51:22,500  
even if the odds are really high

1554  
00:51:22,500 --> 00:51:25,291  
that it's probably nonsense what if it's

1555  
00:51:25,291 --> 00:51:28,208  
not so i'm all for testing

1556  
00:51:28,208 --> 00:51:30,625  
any any crazy idea we can think

1557  
00:51:30,625 --> 00:51:33,333  
of instead of immediately disregarding or

1558  
00:51:33,333 --> 00:51:34,333  
discarding it is like

1559  
00:51:34,333 --> 00:51:37,041  
that's impossible let's apply the

1560  
00:51:37,041 --> 00:51:37,750  
scientific method let's put it to the test so it doesn't just have to be remote sensing of the sky

1561  
00:51:42,125 --> 00:51:45,333  
or space or see there are other aspects

1562  
00:51:45,333 --> 00:51:47,875  
that are you could say traditionally

1563  
00:51:47,875 --> 00:51:49,041

associated with this

1564

00:51:49,041 --> 00:51:51,958

phenomenon that sounds so crazy so

1565

00:51:51,958 --> 00:51:54,375

improbable of being true but

1566

00:51:54,375 --> 00:51:56,458

nevertheless we can still test

1567

00:51:56,458 --> 00:51:59,000

those ideas so even though i'm skeptical

1568

00:51:59,000 --> 00:52:00,833

of the like less nut nuts

1569

00:52:00,833 --> 00:52:02,125

and bolts kinds of things

1570

00:52:02,125 --> 00:52:04,333

these are still things we can test with nuts and bolts we can another example is people

1571

00:52:06,500 --> 00:52:10,791

who claim to have had crazy things happen

1572

00:52:10,791 --> 00:52:13,375

to them we've got we've got

1573

00:52:13,375 --> 00:52:15,458

lie detector tests are nearly

1574

00:52:15,458 --> 00:52:17,833

impossible nearly impossible to break

1575

00:52:17,833 --> 00:52:18,750

they've tested them on

1576

00:52:18,750 --> 00:52:21,625

mythbusters it's really hard to

1577

00:52:21,625 --> 00:52:23,583

cheat some of the lie detector

1578

00:52:23,583 --> 00:52:26,291

technologies we have available these days

1579

00:52:26,291 --> 00:52:28,000

so the that's another

1580

00:52:28,000 --> 00:52:30,958

aspect people claim to have seen something crazy that they can't explain UFO or something like that

1581

00:52:32,291 --> 00:52:37,791

they claim they seem some sort of a being

1582

00:52:37,791 --> 00:52:39,458

i really think and this has been done

1583

00:52:39,458 --> 00:52:40,583

already of course to

1584

00:52:40,583 --> 00:52:43,791

multiple witnesses but i think we i think

1585

00:52:43,791 --> 00:52:45,708

that we should make more

1586

00:52:45,708 --> 00:52:47,791

use as long as you know people

1587

00:52:47,791 --> 00:52:51,125

are okay with it witnesses more use of

1588

00:52:51,125 --> 00:52:52,375

technologies we have like like the

1589

00:52:52,375 --> 00:52:54,166

polygraph and other forms of

1590

00:52:54,166 --> 00:52:56,250

of lie and deception detection because

1591

00:52:56,250 --> 00:52:57,208

they're actually really

1592

00:52:57,208 --> 00:52:57,833

good they're more than you know

1593

00:52:57,833 --> 00:52:59,875

99 point something percent effect they're not they're not they're not they're not they're not more than you know

1594

00:52:59,875 --> 00:53:00,666

something percent effect

1595

00:53:00,666 --> 00:53:02,291

they're not it's not a coin toss

1596

00:53:02,291 --> 00:53:04,375

it's not like it's 5050 so we've got

1597

00:53:04,375 --> 00:53:06,416

we've got technologies where

1598

00:53:06,416 --> 00:53:07,708

even so this is very different

1599

00:53:07,708 --> 00:53:09,916

than remote sensing even if we focus on

1600

00:53:09,916 --> 00:53:11,416

on witnesses there are

1601  
00:53:11,416 --> 00:53:13,375  
ways to determine with a

1602  
00:53:13,375 --> 00:53:16,583  
very high level of scientific certainty

1603  
00:53:16,583 --> 00:53:17,958  
whether people at least it

1604  
00:53:17,958 --> 00:53:18,916  
doesn't prove they saw what

1605  
00:53:18,916 --> 00:53:20,833  
they saw but at least test whether they

1606  
00:53:20,833 --> 00:53:21,875  
believe what they're

1607  
00:53:21,875 --> 00:53:23,458  
saying and that helps eliminate

1608  
00:53:24,000 --> 00:53:25,875  
people who are just in uap is trying to

1609  
00:53:25,875 --> 00:53:27,333  
get famous versus people

1610  
00:53:27,333 --> 00:53:29,208  
who have actually witnessed

1611  
00:53:29,208 --> 00:53:30,458  
something they can't explain so there are

1612  
00:53:30,458 --> 00:53:31,416  
a lot of different ways we

1613  
00:53:31,416 --> 00:53:34,000

can tackle tackle this problem

1614

00:53:34,000 --> 00:53:36,375

have you experienced any stigma related

1615

00:53:36,375 --> 00:53:38,666

to your interest in this topic

1616

00:53:38,666 --> 00:53:41,666

professionally or personally i i have but

1617

00:53:41,666 --> 00:53:44,083

i'm very lucky because i

1618

00:53:44,083 --> 00:53:45,291

think the stigma is greatly

1619

00:53:45,291 --> 00:53:48,041

reduced it's not gone but it's greatly

1620

00:53:48,041 --> 00:53:50,291

reduced and it's reduced

1621

00:53:50,291 --> 00:53:52,166

because of the first excellent

1622

00:53:52,875 --> 00:53:54,583

journalistic work we've got people like

1623

00:53:54,583 --> 00:53:56,958

um leslie keen you know we had the the

1624

00:53:56,958 --> 00:53:58,041

famous new york times

1625

00:53:58,041 --> 00:54:00,875

article we have um lou elizondo coming

1626  
00:54:00,875 --> 00:54:02,458  
out and talking about

1627  
00:54:02,458 --> 00:54:06,208  
these things and the these

1628  
00:54:06,208 --> 00:54:08,625  
incidents reduce the stigma but don't

1629  
00:54:08,625 --> 00:54:10,708  
eliminate it completely so i've

1630  
00:54:10,708 --> 00:54:15,041  
definitely had um uh family

1631  
00:54:15,041 --> 00:54:17,166  
members laugh most are supportive don't

1632  
00:54:17,166 --> 00:54:18,500  
get me wrong but there will

1633  
00:54:18,500 --> 00:54:21,833  
be a giggle or um from from

1634  
00:54:22,333 --> 00:54:24,750  
colleagues in my department as well much

1635  
00:54:24,750 --> 00:54:26,250  
worse for for my i'm sure

1636  
00:54:26,250 --> 00:54:27,875  
for my friend kevin a canooth

1637  
00:54:27,875 --> 00:54:30,125  
who's been doing this uh for longer than

1638  
00:54:30,125 --> 00:54:32,708

i have but there's definitely still

1639

00:54:32,708 --> 00:54:34,375

stigma but that being

1640

00:54:34,375 --> 00:54:36,583

said i still consider myself lucky

1641

00:54:36,583 --> 00:54:38,666

because i feel like decades ago it was

1642

00:54:38,666 --> 00:54:40,166

much worse i'm sure it was

1643

00:54:40,166 --> 00:54:42,333

much much worse for people like uh jail

1644

00:54:42,333 --> 00:54:44,458

and heineck for example

1645

00:54:44,458 --> 00:54:46,875

probably had um a heck of a time at

1646

00:54:47,125 --> 00:54:49,750

their home institution home department so

1647

00:54:49,750 --> 00:54:51,333

i consider myself lucky

1648

00:54:51,333 --> 00:54:53,791

that i have mostly supportive

1649

00:54:53,791 --> 00:54:56,166

colleagues and supportive family the the

1650

00:54:56,166 --> 00:54:58,000

giggle factor is has become

1651

00:54:58,000 --> 00:54:59,666

the exception where it used

1652

00:54:59,666 --> 00:55:02,083

to be the rule and it used to be that the

1653

00:55:02,083 --> 00:55:03,500

exception was that that it

1654

00:55:03,500 --> 00:55:06,416

would be okay interesting um is

1655

00:55:06,416 --> 00:55:07,875

this something you've engaged with your

1656

00:55:07,875 --> 00:55:09,750

students at all i have and

1657

00:55:09,750 --> 00:55:12,000

my students are are um way

1658

00:55:12,333 --> 00:55:16,791

open-minded than any people um my age or

1659

00:55:16,791 --> 00:55:18,666

older and i think that's

1660

00:55:18,666 --> 00:55:19,916

great because that gives me

1661

00:55:19,916 --> 00:55:23,500

hope for the future and and so i have

1662

00:55:23,500 --> 00:55:27,750

very it's very rare that i would have

1663

00:55:27,750 --> 00:55:28,708

that i would encounter

1664

00:55:28,708 --> 00:55:32,166

student who's not immediately fascinated

1665

00:55:32,166 --> 00:55:35,000

by the topic very rarely

1666

00:55:35,000 --> 00:55:39,041

our students as um as uh as as

1667

00:55:39,708 --> 00:55:43,708

uh a skeptical as uh as as scientists in

1668

00:55:43,708 --> 00:55:45,916

general or as as uh you

1669

00:55:45,916 --> 00:55:47,416

know i was i was about to say

1670

00:55:47,416 --> 00:55:49,291

adults in general college students are

1671

00:55:49,291 --> 00:55:50,083

adults but you know what i

1672

00:55:50,083 --> 00:55:51,625

mean you know people who have

1673

00:55:51,625 --> 00:55:53,875

established careers do you think that's

1674

00:55:53,875 --> 00:55:55,125

our natural state and

1675

00:55:55,125 --> 00:55:56,458

something happens as we go

1676  
00:55:56,458 --> 00:55:58,541  
through the process we end up at a

1677  
00:55:58,541 --> 00:56:02,208  
degraded state or is is that a sense of

1678  
00:56:02,208 --> 00:56:03,041  
silliness or risk that

1679  
00:56:03,208 --> 00:56:05,916  
they're taking that they'll grow out of

1680  
00:56:05,916 --> 00:56:07,833  
for the better do you think

1681  
00:56:07,833 --> 00:56:10,000  
well i i don't think growing

1682  
00:56:10,000 --> 00:56:11,833  
out of it for the better is a good thing

1683  
00:56:11,833 --> 00:56:13,416  
because even if even if

1684  
00:56:13,416 --> 00:56:15,708  
let's say i don't think this is

1685  
00:56:15,708 --> 00:56:17,583  
the case but let's say all of uap it's

1686  
00:56:17,583 --> 00:56:18,916  
all nonsense i don't think that's the

1687  
00:56:18,916 --> 00:56:20,166  
case is your experience

1688  
00:56:20,166 --> 00:56:22,583

is experience of of gary verise and kevin

1689

00:56:22,583 --> 00:56:23,916

day and so many others but

1690

00:56:23,916 --> 00:56:25,041

let's for the sake of argument

1691

00:56:25,041 --> 00:56:26,666

say it's all nonsense and people should

1692

00:56:26,666 --> 00:56:27,625

grow out of it for the

1693

00:56:27,625 --> 00:56:29,583

better no because i think that it

1694

00:56:29,875 --> 00:56:32,041

can fire the imagination in the same way

1695

00:56:32,041 --> 00:56:33,875

that fiction does so for

1696

00:56:33,875 --> 00:56:36,541

example let's say either uap

1697

00:56:36,541 --> 00:56:38,583

does nothing interesting or let's say it

1698

00:56:38,583 --> 00:56:39,875

is interesting but let's

1699

00:56:39,875 --> 00:56:42,750

say it's a natural phenomenon

1700

00:56:42,750 --> 00:56:44,583

and there are no alien spacecraft for

1701

00:56:44,583 --> 00:56:47,000

example that doesn't matter

1702

00:56:47,000 --> 00:56:48,541

because this is how i i've

1703

00:56:48,541 --> 00:56:52,166

often concluded talks i've given um with

1704

00:56:52,166 --> 00:56:53,750

with kevin on our uapx

1705

00:56:53,750 --> 00:56:54,791

preliminary results is on our

1706

00:56:55,291 --> 00:56:56,833

concluding side we say look even if this

1707

00:56:56,833 --> 00:56:59,208

is all nonsense we want to

1708

00:56:59,208 --> 00:57:01,291

inspire the next generation of

1709

00:57:01,291 --> 00:57:03,583

scientists engineers even coming up um

1710

00:57:03,583 --> 00:57:05,666

underneath us underneath and me too

1711

00:57:05,666 --> 00:57:07,375

because what if there's

1712

00:57:07,375 --> 00:57:10,166

no what if um there are no alien

1713

00:57:10,166 --> 00:57:12,500

wormholes or warp drives things like that

1714

00:57:12,500 --> 00:57:15,541

but what if by trying to

1715

00:57:15,541 --> 00:57:18,750

find aliens doing these things wormholes

1716

00:57:18,750 --> 00:57:21,125

warp drives what if we

1717

00:57:21,125 --> 00:57:23,041

inspire human scientist engineers

1718

00:57:23,375 --> 00:57:26,000

to create those technologies and so it's

1719

00:57:26,000 --> 00:57:27,708

still a worthwhile endeavor

1720

00:57:27,708 --> 00:57:29,791

but i think u.s is a people

1721

00:57:29,791 --> 00:57:31,416

something people grow out of i think

1722

00:57:31,416 --> 00:57:33,416

that's part of it but i think there's

1723

00:57:33,416 --> 00:57:34,583

another part which is

1724

00:57:34,583 --> 00:57:36,833

there is a natural progression also of

1725

00:57:36,833 --> 00:57:39,000

humanity from generation to generation

1726

00:57:39,000 --> 00:57:41,041

where each generation

1727

00:57:41,041 --> 00:57:44,541

is um open to more things you can see

1728

00:57:44,541 --> 00:57:46,500

this it's not just science

1729

00:57:46,500 --> 00:57:47,208

you can see this you know in

1730

00:57:47,875 --> 00:57:50,125

religion in morals and ethics things that

1731

00:57:50,125 --> 00:57:52,208

used to be you know we

1732

00:57:52,208 --> 00:57:53,791

wouldn't talk about them decades

1733

00:57:53,791 --> 00:57:56,833

ago are now accepted parts of our society

1734

00:57:56,833 --> 00:57:59,500

you can see this with um lgbtq and

1735

00:57:59,500 --> 00:58:00,458

advancements on that

1736

00:58:00,458 --> 00:58:02,625

front where you know we didn't talk about

1737

00:58:02,625 --> 00:58:04,708

it you know decades ago and

1738

00:58:04,708 --> 00:58:05,916

then the sort of the sphere

1739

00:58:05,916 --> 00:58:08,250

of human rights keeps expanding i think

1740

00:58:08,250 --> 00:58:09,458

that the same thing sort of

1741

00:58:09,458 --> 00:58:11,000

happens in science so it's not

1742

00:58:11,000 --> 00:58:12,583

just you know kids are curious and then

1743

00:58:12,583 --> 00:58:14,125

they end up you know

1744

00:58:14,125 --> 00:58:15,208

becoming you know hard you know then

1745

00:58:15,416 --> 00:58:17,625

they get their job and then they lose the

1746

00:58:17,625 --> 00:58:18,708

magic of childhood that's

1747

00:58:18,708 --> 00:58:20,583

part of it but i think another

1748

00:58:20,583 --> 00:58:24,041

part uh an opposite force of that is

1749

00:58:24,041 --> 00:58:26,875

every generation becomes

1750

00:58:26,875 --> 00:58:28,083

slightly more open-minded

1751

00:58:28,083 --> 00:58:30,666

at least i hope so and that gives me hope

1752

00:58:30,666 --> 00:58:32,083

for the future of humanity

1753

00:58:32,083 --> 00:58:34,500

it's not a perfect process i'm

1754

00:58:34,500 --> 00:58:36,541

not saying that it's a linear process i'm

1755

00:58:36,541 --> 00:58:37,958

not claiming that i'm sure

1756

00:58:37,958 --> 00:58:38,791

there are some cases where

1757

00:58:39,041 --> 00:58:41,166

we take we take three steps forward two

1758

00:58:41,166 --> 00:58:43,125

steps back things like that but i think

1759

00:58:43,125 --> 00:58:45,833

as a general process

1760

00:58:45,833 --> 00:58:48,541

each younger generation on average again

1761

00:58:48,541 --> 00:58:50,500

you can always find outliers

1762

00:58:50,500 --> 00:58:52,416

but i think that on average

1763

00:58:52,416 --> 00:58:54,583

we're becoming slowly more open-minded

1764

00:58:54,583 --> 00:58:56,458

and i think that's what i'm

1765

00:58:56,458 --> 00:58:59,500

seeing in my classrooms so it's

1766

00:58:59,500 --> 00:59:01,416

it's encouraging for me to hear you say

1767

00:59:01,416 --> 00:59:03,333

that about the younger generation but

1768

00:59:03,333 --> 00:59:04,083

academia of course is

1769

00:59:04,458 --> 00:59:09,125

ruled by an older class of professors

1770

00:59:09,125 --> 00:59:12,500

whatnot so i have seen a somewhat unique

1771

00:59:12,500 --> 00:59:13,083

i support everything

1772

00:59:13,083 --> 00:59:14,333

you just said about the younger

1773

00:59:14,333 --> 00:59:16,500

generation being more open to this i have

1774

00:59:16,500 --> 00:59:19,500

seen a cohort of um of

1775

00:59:19,500 --> 00:59:22,916

of older people who are engaging this and

1776

00:59:22,916 --> 00:59:24,583

they're engaging it from a

1777

00:59:24,583 --> 00:59:25,625

manner of this was something i

1778

00:59:25,625 --> 00:59:27,250

was interested in when i was a kid this

1779

00:59:27,250 --> 00:59:28,250

is something that was

1780

00:59:28,250 --> 00:59:29,041

presented to me in a different

1781

00:59:29,416 --> 00:59:32,000

light and then it went away and it went

1782

00:59:32,000 --> 00:59:33,333

away in the public's

1783

00:59:33,333 --> 00:59:34,500

fear to a certain degree but

1784

00:59:34,500 --> 00:59:37,041

didn't necessarily go away for them they

1785

00:59:37,041 --> 00:59:38,458

continued on and now they

1786

00:59:38,458 --> 00:59:40,416

see this as potentially an

1787

00:59:40,416 --> 00:59:43,333

opportunity to reinvigorate that interest

1788

00:59:43,333 --> 00:59:45,208

and that potential that

1789

00:59:45,208 --> 00:59:46,375

they they saw when they were

1790

00:59:46,375 --> 00:59:48,250

younger so i have seen a bit of that

1791

00:59:48,250 --> 00:59:49,708

cohort but to the larger

1792

00:59:49,708 --> 00:59:53,291

point academia it does does have

1793

00:59:53,750 --> 00:59:56,833

age at the top so how do we get academia

1794

00:59:56,833 --> 00:59:58,041

to be more open to

1795

00:59:58,041 --> 01:00:01,458

these ideas and to integrate

1796

01:00:01,458 --> 01:00:03,916

into into what is slightly a gatekeeping

1797

01:00:03,916 --> 01:00:05,416

type situation where uap

1798

01:00:05,416 --> 01:00:06,708

is considered essentially

1799

01:00:06,708 --> 01:00:09,916

a low-class study if you will um by the

1800

01:00:09,916 --> 01:00:10,791

people at these

1801  
01:00:10,791 --> 01:00:12,500  
institutions how do we bridge that gap

1802  
01:00:12,500 --> 01:00:14,625  
the younger generation is interested in

1803  
01:00:14,625 --> 01:00:15,833  
certain professionals are getting

1804  
01:00:15,833 --> 01:00:16,541  
interested in that have

1805  
01:00:16,541 --> 01:00:18,666  
done the background on it how do we bring

1806  
01:00:18,666 --> 01:00:20,666  
that to the wider cohort i

1807  
01:00:20,666 --> 01:00:21,291  
think there's several ways to

1808  
01:00:21,541 --> 01:00:26,416  
do that one is um that there needs to be

1809  
01:00:26,416 --> 01:00:28,041  
funding mechanisms so it

1810  
01:00:28,041 --> 01:00:30,208  
sounds very cynical but if a

1811  
01:00:30,208 --> 01:00:31,833  
young professor if a professor is

1812  
01:00:31,833 --> 01:00:34,708  
bringing money to study uap their

1813  
01:00:34,708 --> 01:00:36,083

colleagues will laugh but the

1814

01:00:36,083 --> 01:00:38,250

university administration will not laugh

1815

01:00:38,250 --> 01:00:40,375

if they're bringing in cash so i know

1816

01:00:40,375 --> 01:00:42,083

it's a terrible cynical

1817

01:00:42,083 --> 01:00:44,541

thing to say but it is true that if there

1818

01:00:44,541 --> 01:00:46,416

was a mechanism so in my

1819

01:00:46,416 --> 01:00:47,208

research in dark matter for

1820

01:00:47,875 --> 01:00:51,333

example i my colleague professor sasilia

1821

01:00:51,333 --> 01:00:52,958

levi and i we have we have

1822

01:00:52,958 --> 01:00:55,333

like a million dollar plus grant

1823

01:00:55,333 --> 01:00:57,458

so you know you know who's gonna no one's

1824

01:00:57,458 --> 01:00:58,958

gonna laugh at that and so

1825

01:00:58,958 --> 01:01:00,083

the same thing if there were

1826

01:01:00,083 --> 01:01:02,583

if there's money in uap study but the

1827

01:01:02,583 --> 01:01:05,375

problem is then as you said you have to

1828

01:01:05,375 --> 01:01:07,750

convince um an older

1829

01:01:07,750 --> 01:01:09,541

maybe more like scientifically

1830

01:01:09,541 --> 01:01:11,000

conservative community that

1831

01:01:11,000 --> 01:01:12,541

it's worth spending money on

1832

01:01:12,541 --> 01:01:14,125

because then the criticism is oh it's a

1833

01:01:14,125 --> 01:01:15,583

waste of time because it's

1834

01:01:15,583 --> 01:01:16,500

nonsense why we're gonna spend

1835

01:01:16,791 --> 01:01:19,416

money on it zero-sum game yeah yeah there

1836

01:01:19,416 --> 01:01:21,333

is finite resources so

1837

01:01:21,333 --> 01:01:23,208

if you spend money on that

1838

01:01:23,208 --> 01:01:25,416

then that must mean some other scientific

1839

01:01:25,416 --> 01:01:25,875

endeavor is not going

1840

01:01:25,875 --> 01:01:26,750

to get money and then you

1841

01:01:26,750 --> 01:01:28,166

say why are we wasting money on this

1842

01:01:28,166 --> 01:01:29,083

pseudoscientific thing

1843

01:01:29,083 --> 01:01:30,583

of ufo's when there's real

1844

01:01:30,583 --> 01:01:32,375

science to be done so that's why i'm

1845

01:01:32,375 --> 01:01:34,375

saying that's only part of the answer

1846

01:01:34,375 --> 01:01:35,416

because funding that's

1847

01:01:35,416 --> 01:01:37,458

just going to magically happen we as you

1848

01:01:37,458 --> 01:01:38,750

said it's a zero-sum game

1849

01:01:38,750 --> 01:01:40,500

we have finite resources

1850

01:01:40,500 --> 01:01:43,000

we're barely we don't have enough money

1851

01:01:43,000 --> 01:01:44,208

in this country or

1852

01:01:44,208 --> 01:01:45,208

anywhere in the world to do

1853

01:01:46,041 --> 01:01:48,041

all of the mainstream science topics we

1854

01:01:48,041 --> 01:01:49,333

have to do dark matter is

1855

01:01:49,333 --> 01:01:51,000

is underfunded everything's

1856

01:01:51,000 --> 01:01:53,166

underfunded and so it's a hard case to

1857

01:01:53,166 --> 01:01:54,625

make so other things

1858

01:01:54,625 --> 01:01:57,416

that have to happen is um

1859

01:01:57,416 --> 01:02:00,958

is people um i i've said this on multiple

1860

01:02:00,958 --> 01:02:03,000

podcasts already older more

1861

01:02:03,000 --> 01:02:03,916

conservative generation just

1862

01:02:03,916 --> 01:02:07,083

needs to retire or die or both it's just

1863

01:02:07,083 --> 01:02:08,000

part of the natural

1864

01:02:08,000 --> 01:02:09,333

progression i said is then younger

1865

01:02:09,333 --> 01:02:12,583

people who are more open-minded take over

1866

01:02:12,583 --> 01:02:14,291

faculty positions and

1867

01:02:14,291 --> 01:02:14,958

become editors of journals

1868

01:02:15,583 --> 01:02:19,208

journals and and a third aspect of how to

1869

01:02:19,208 --> 01:02:20,708

address this which none of

1870

01:02:20,708 --> 01:02:22,375

the things i'm suggesting are

1871

01:02:22,375 --> 01:02:24,583

all are gonna fix it entirely that

1872

01:02:24,583 --> 01:02:25,958

because anyone that's a tough question

1873

01:02:25,958 --> 01:02:26,791

yeah it's a tough problem

1874

01:02:26,791 --> 01:02:29,500

to solve but one more one last idea i

1875

01:02:29,500 --> 01:02:33,208

have on what could help is um is is

1876

01:02:33,208 --> 01:02:34,375

maintaining of academic

1877

01:02:34,375 --> 01:02:36,625

freedom because you pointed out um how

1878

01:02:36,625 --> 01:02:39,750

things can can end up um you

1879

01:02:39,750 --> 01:02:41,125

end up being stuck you know in

1880

01:02:41,458 --> 01:02:43,875

your in your sort of track of scientific

1881

01:02:43,875 --> 01:02:45,083

dogma and sort of stuck in

1882

01:02:45,083 --> 01:02:46,958

a rut academic freedom is

1883

01:02:46,958 --> 01:02:49,500

very important and where that comes from

1884

01:02:49,500 --> 01:02:50,833

is tenure basically the

1885

01:02:50,833 --> 01:02:52,166

inability to not get the

1886

01:02:52,166 --> 01:02:53,250

inability to get fired because then you

1887

01:02:53,250 --> 01:02:54,916

can work on whatever you want

1888

01:02:54,916 --> 01:02:56,375

and there are many states in

1889

01:02:56,375 --> 01:02:58,083

the country they're starting to try to

1890

01:02:58,083 --> 01:03:01,625

like um repeal or remove that

1891

01:03:01,625 --> 01:03:03,208

and i think that's extremely

1892

01:03:03,208 --> 01:03:04,166

dangerous because it's one of the

1893

01:03:04,166 --> 01:03:06,291

bedrocks of a free society

1894

01:03:06,291 --> 01:03:08,416

is that the in the in academia

1895

01:03:09,250 --> 01:03:11,208

um and what most people don't realize is

1896

01:03:11,208 --> 01:03:12,666

that the protections of

1897

01:03:12,666 --> 01:03:15,500

academic freedom go all directions

1898

01:03:15,500 --> 01:03:19,500

for example a liberal professor can stay

1899

01:03:19,500 --> 01:03:20,750

in the closet at a

1900

01:03:20,750 --> 01:03:22,166

conservative school conservative

1901

01:03:22,166 --> 01:03:24,125

professor can stay in the conservative

1902

01:03:24,125 --> 01:03:25,083

closet until they get

1903

01:03:25,083 --> 01:03:26,375

tenure at a liberal school and be

1904

01:03:26,375 --> 01:03:28,916

like haha i'm conservative too late you

1905

01:03:28,916 --> 01:03:31,541

can't fire me so like it's tenure is

1906

01:03:31,541 --> 01:03:33,000

crucial and it's under

1907

01:03:33,000 --> 01:03:34,875

attack in many different in many

1908

01:03:34,875 --> 01:03:37,291

different places and basically there are

1909

01:03:37,291 --> 01:03:38,166

a lot of critics like

1910

01:03:38,583 --> 01:03:40,916

oh and if you can't get fired you'll be

1911

01:03:40,916 --> 01:03:42,583

lazy now do your job of

1912

01:03:42,583 --> 01:03:43,958

course there are downsides but

1913

01:03:43,958 --> 01:03:46,625

there's massive upsides like i can go

1914

01:03:46,625 --> 01:03:50,250

work on uaps and i can't get fired that's

1915

01:03:50,250 --> 01:03:51,875

enormous and if that

1916

01:03:51,875 --> 01:03:54,291

continues that's going to help because as

1917

01:03:54,291 --> 01:03:57,041

long as is that as the tenure system

1918

01:03:57,041 --> 01:03:58,375

continues then that's

1919

01:03:58,375 --> 01:04:00,250

going to help because it means that

1920

01:04:00,250 --> 01:04:02,416

professors once they can't get fired

1921

01:04:02,416 --> 01:04:04,250

anymore can go work on uap

1922

01:04:05,416 --> 01:04:07,166

and you know they self teach their

1923

01:04:07,166 --> 01:04:08,750

classes and the other aspects of their

1924

01:04:08,750 --> 01:04:10,000

job but at least don't

1925

01:04:10,000 --> 01:04:11,750

they don't need to worry about getting

1926

01:04:11,750 --> 01:04:13,625

fired and i think that's

1927

01:04:13,625 --> 01:04:15,916

really going to help drive things

1928

01:04:15,916 --> 01:04:17,791

like uap research forward and that's

1929

01:04:17,791 --> 01:04:19,166

already happening as i said

1930

01:04:19,166 --> 01:04:20,541

but there's this there's a

1931

01:04:20,541 --> 01:04:24,041

lot of um criticism against the the

1932

01:04:24,041 --> 01:04:26,125

tenure system academia right now but i

1933

01:04:26,125 --> 01:04:27,666

think it it's goods out

1934

01:04:27,666 --> 01:04:30,500

the good of it outweighs the bad we're

1935

01:04:30,500 --> 01:04:31,541

looking for something as

1936

01:04:31,541 --> 01:04:33,125

anomalous in the sky and i think

1937

01:04:33,416 --> 01:04:34,833

we understand that there's a few buckets

1938

01:04:34,833 --> 01:04:36,250

that that could fall into

1939

01:04:36,250 --> 01:04:37,000

and we're not necessarily

1940

01:04:37,000 --> 01:04:38,500

at a point where we can draw a conclusion

1941

01:04:38,500 --> 01:04:41,208

about what they are but

1942

01:04:41,208 --> 01:04:43,750

of course there there's

1943

01:04:43,750 --> 01:04:46,416

hypothesis and there's some popular

1944

01:04:46,416 --> 01:04:47,416

culture talk about aliens

1945

01:04:47,416 --> 01:04:49,250

and things of that nature

1946

01:04:49,250 --> 01:04:52,083

you know where are we it sounds crazy to

1947

01:04:52,083 --> 01:04:53,083

think about

1948

01:04:53,083 --> 01:04:56,083

spaceships in our sky but if we

1949

01:04:56,250 --> 01:04:59,625

you know forget about our local

1950

01:04:59,625 --> 01:05:00,875

neighborhood here and we kind

1951

01:05:00,875 --> 01:05:03,916

of look far out into universe

1952

01:05:03,916 --> 01:05:06,125

where are we on our understanding of of

1953

01:05:06,125 --> 01:05:08,833

life in the universe have

1954

01:05:08,833 --> 01:05:10,208

we updated the drake equation

1955

01:05:10,208 --> 01:05:14,208

at all lately what's what's what's your

1956

01:05:14,208 --> 01:05:16,291

thoughts on on whether

1957

01:05:16,291 --> 01:05:17,666

intelligent life is feasible

1958

01:05:17,666 --> 01:05:21,041

elsewhere in the universe so yeah i'm i'm

1959

01:05:21,041 --> 01:05:22,708

100 not an idea i'm putting

1960

01:05:22,708 --> 01:05:24,250

something i'm 100 convinced

1961

01:05:24,500 --> 01:05:27,833

we're not alone and in fact i think the

1962

01:05:27,833 --> 01:05:29,458

claim that we are alone

1963

01:05:29,458 --> 01:05:31,333

which is a valid claim to make

1964

01:05:31,333 --> 01:05:34,333

i think that's extraordinary it's an

1965

01:05:34,333 --> 01:05:36,333

extraordinary hypothesis and it requires

1966

01:05:36,333 --> 01:05:37,458

extraordinary evidence

1967

01:05:37,458 --> 01:05:39,416

and all the evidence points the other

1968

01:05:39,416 --> 01:05:41,375

direction so that's why i i

1969

01:05:41,375 --> 01:05:44,208

think that um i think that

1970

01:05:44,208 --> 01:05:45,583

what evidence points in the other

1971

01:05:45,583 --> 01:05:48,708

direction oh so the the discoveries over

1972

01:05:48,708 --> 01:05:49,583

the last few decades of

1973

01:05:49,916 --> 01:05:52,333

exoplanets planets outside of our star

1974

01:05:52,333 --> 01:05:53,583

system when you and i

1975

01:05:53,583 --> 01:05:55,833

watched star trek next generation

1976

01:05:55,833 --> 01:05:57,833

um well it was it was a seven-year show

1977

01:05:57,833 --> 01:05:58,833

over the course of that

1978

01:05:58,833 --> 01:06:01,500

show most of the during most of

1979

01:06:01,500 --> 01:06:03,500

star trek you know how many other planets

1980

01:06:03,500 --> 01:06:04,625

we knew about outside our

1981

01:06:04,625 --> 01:06:08,375

system zero and then became one

1982

01:06:08,375 --> 01:06:10,333

one in the 90s or i think in the 80s

1983

01:06:10,333 --> 01:06:11,500

there might have been like a

1984

01:06:11,500 --> 01:06:12,541

preliminary zone in the 80s but

1985

01:06:12,541 --> 01:06:14,458

in the 90s when we finally we

1986

01:06:14,458 --> 01:06:16,000

conclusively found a planet outside of

1987

01:06:16,000 --> 01:06:16,875

our system you know how many

1988

01:06:17,125 --> 01:06:20,375

we know of now several thousand and

1989

01:06:20,375 --> 01:06:22,083

that's only in a tiny patch of the sky

1990

01:06:22,083 --> 01:06:23,000

you extrapolate that to

1991

01:06:23,000 --> 01:06:25,333

the entire milky way it's probably

1992

01:06:25,333 --> 01:06:26,291

trillions of planets in our

1993

01:06:26,291 --> 01:06:29,250

milky way and as far as we know

1994

01:06:29,250 --> 01:06:31,375

statistically something like 20 percent

1995

01:06:31,375 --> 01:06:32,583

so you're asking about updates to the

1996

01:06:32,583 --> 01:06:34,208

drake equation drake

1997

01:06:34,208 --> 01:06:37,916

equation started out as just um wild

1998

01:06:37,916 --> 01:06:39,875

guesses like i'm not

1999

01:06:39,875 --> 01:06:41,000

criticizing could you know start the

2000

01:06:41,000 --> 01:06:43,416

beginning of that equation i just like

2001

01:06:43,416 --> 01:06:44,458

sure explain what it is

2002

01:06:44,458 --> 01:06:45,666

yeah so the the idea yeah

2003

01:06:46,000 --> 01:06:47,541

for your listeners right the drake

2004

01:06:47,541 --> 01:06:50,000

equation is an attempt to estimate the

2005

01:06:50,000 --> 01:06:51,250

number of intelligent

2006

01:06:51,250 --> 01:06:53,333

civilizations based on certain factors

2007

01:06:53,333 --> 01:06:54,625

off the top of my head i'm not going to

2008

01:06:54,625 --> 01:06:55,291

remember all of them

2009

01:06:55,291 --> 01:06:56,333

there's probably like there's more than

2010

01:06:56,333 --> 01:06:57,500

half a dozen but it's

2011

01:06:57,500 --> 01:06:58,833

things like you know how many

2012

01:06:58,833 --> 01:07:01,375

planets are there around stars how often

2013

01:07:01,375 --> 01:07:02,916

do they evolve intelligent

2014

01:07:02,916 --> 01:07:04,750

life things like that and when

2015

01:07:04,750 --> 01:07:06,750

drake first came up with his equation he

2016

01:07:06,750 --> 01:07:08,500

was an astronomer actually i

2017

01:07:08,500 --> 01:07:09,583

said was i i don't remember

2018

01:07:09,875 --> 01:07:12,250

if he he passed away recently or not but

2019

01:07:12,250 --> 01:07:14,125

uh but if he's still alive he's probably

2020

01:07:14,125 --> 01:07:16,875

very old um initially

2021

01:07:16,875 --> 01:07:18,333

and this is not a criticism i think you

2022

01:07:18,333 --> 01:07:19,250

know we didn't have

2023

01:07:19,250 --> 01:07:21,041

computers and things like that yet

2024

01:07:21,041 --> 01:07:24,041

all numbers were just wild guesses most

2025

01:07:24,041 --> 01:07:24,583

of the numbers in

2026

01:07:24,583 --> 01:07:26,125

drake occasion wild guesses

2027

01:07:26,125 --> 01:07:28,416

this is not the case anymore there's

2028

01:07:28,416 --> 01:07:30,500

still don't get me wrong massive

2029

01:07:30,500 --> 01:07:31,875

uncertainties people can still

2030

01:07:31,875 --> 01:07:33,708

argue but some of those numbers we're

2031

01:07:33,708 --> 01:07:35,041

starting to add data yeah

2032

01:07:35,041 --> 01:07:36,000

exactly we've got real data with

2033

01:07:36,541 --> 01:07:38,291

telescopes and so one of those things

2034

01:07:38,291 --> 01:07:39,958

that one of those factors in drake

2035

01:07:39,958 --> 01:07:41,125

equation that's no longer

2036

01:07:41,125 --> 01:07:44,000

a wild guess are the number of planets

2037

01:07:44,000 --> 01:07:45,250

and the number of

2038

01:07:45,250 --> 01:07:47,833

potentially habitable planets and

2039

01:07:47,833 --> 01:07:50,958

remarkably this makes me really excited

2040

01:07:50,958 --> 01:07:53,625

even star trek wasn't

2041

01:07:53,625 --> 01:07:55,875

optimistic enough i used to laugh like

2042

01:07:55,875 --> 01:07:57,958

not just star trek next generation but

2043

01:07:57,958 --> 01:07:59,333

then um star trek voyager they're stuck

2044

01:07:59,333 --> 01:08:00,250

in the delta quadrant

2045

01:08:00,250 --> 01:08:02,708

and they're like there's a plan at every

2046

01:08:02,708 --> 01:08:04,625

episode and it's always m

2047

01:08:04,625 --> 01:08:05,458

class right as they call in star

2048

01:08:05,666 --> 01:08:08,166

trek they can always land they don't

2049

01:08:08,166 --> 01:08:10,833

never need space suits turns out star

2050

01:08:10,833 --> 01:08:12,208

trek wasn't optimistic

2051  
01:08:12,208 --> 01:08:15,458  
enough there are so many planets that we

2052  
01:08:15,458 --> 01:08:17,333  
think probably most stars

2053  
01:08:17,333 --> 01:08:19,166  
have planets around them so

2054  
01:08:19,166 --> 01:08:21,291  
instead of planets being the exception it

2055  
01:08:21,291 --> 01:08:22,333  
turns out they're the rule

2056  
01:08:22,333 --> 01:08:23,666  
they're planets everywhere

2057  
01:08:23,666 --> 01:08:25,666  
and that doesn't count moons asteroids

2058  
01:08:25,666 --> 01:08:27,625  
other bodies not only are

2059  
01:08:27,625 --> 01:08:29,125  
there planets everywhere

2060  
01:08:29,125 --> 01:08:31,708  
we grossly underestimated decades ago

2061  
01:08:31,708 --> 01:08:32,541  
when we're still arguing

2062  
01:08:32,541 --> 01:08:33,291  
about this without data we've

2063  
01:08:33,875 --> 01:08:35,750

grossly underestimated the number of

2064

01:08:35,750 --> 01:08:37,958

habitable planets basically planets that

2065

01:08:37,958 --> 01:08:39,833

are in the so called

2066

01:08:39,833 --> 01:08:41,791

goldilocks zone in astronomy not too hot

2067

01:08:41,791 --> 01:08:43,833

not too cold where there's

2068

01:08:43,833 --> 01:08:46,375

probably liquid water oxygen

2069

01:08:46,375 --> 01:08:48,875

but that's only life as we know it right

2070

01:08:48,875 --> 01:08:50,416

and so if you count life

2071

01:08:50,416 --> 01:08:51,750

not as we know it what if life

2072

01:08:51,750 --> 01:08:54,583

doesn't need water and oxygen right then

2073

01:08:54,583 --> 01:08:56,708

there could be billions if

2074

01:08:56,708 --> 01:08:58,791

not trillions of worlds so

2075

01:08:59,083 --> 01:09:00,791

a separate question though and this is

2076

01:09:00,791 --> 01:09:03,208

the more difficult one is if there's

2077

01:09:03,208 --> 01:09:03,791

intelligent life can

2078

01:09:03,791 --> 01:09:07,708

it get here and that one is still hotly

2079

01:09:07,708 --> 01:09:09,333

debated even though i've

2080

01:09:09,333 --> 01:09:12,166

tried to i wrote um a medium

2081

01:09:12,166 --> 01:09:15,458

essay for uapx about this like i i think

2082

01:09:15,458 --> 01:09:17,541

it's pretty clear to me

2083

01:09:17,541 --> 01:09:19,375

interstellar travel is possible

2084

01:09:19,375 --> 01:09:22,125

but then people immediately start

2085

01:09:22,125 --> 01:09:24,666

attacking that no it's too hard the

2086

01:09:24,666 --> 01:09:26,500

distances are too great and

2087

01:09:26,833 --> 01:09:30,166

so i think that the probability of

2088

01:09:30,166 --> 01:09:34,250

intelligent life is nearly 100 but can it

2089

01:09:34,250 --> 01:09:36,500

can intelligent life

2090

01:09:36,500 --> 01:09:40,500

travel to other systems that is a much

2091

01:09:40,500 --> 01:09:42,500

trickier question i'm of the

2092

01:09:42,500 --> 01:09:44,333

opinion that it's that it's

2093

01:09:44,333 --> 01:09:47,791

easy but but but scientists can look me

2094

01:09:47,791 --> 01:09:49,500

in the eye in good faith and say i'm

2095

01:09:49,500 --> 01:09:50,083

wrong and then it's very

2096

01:09:50,541 --> 01:09:53,041

hard and there's room there for debate

2097

01:09:53,041 --> 01:09:55,083

and discussion but for the

2098

01:09:55,083 --> 01:09:57,083

probability of of of life

2099

01:09:57,083 --> 01:09:59,375

including intelligent life i think that's

2100

01:09:59,375 --> 01:10:01,416

very close to 100 given

2101

01:10:01,416 --> 01:10:02,500

the discoveries of the past

2102

01:10:02,500 --> 01:10:05,291

few decades 30 years ago we'd be having a

2103

01:10:05,291 --> 01:10:06,583

different conversation

2104

01:10:06,583 --> 01:10:08,833

because we had found only

2105

01:10:08,833 --> 01:10:11,000

one one planet outside of our solar

2106

01:10:11,000 --> 01:10:13,083

system so i i don't i

2107

01:10:13,083 --> 01:10:14,166

hesitate to speak for everyone but

2108

01:10:14,625 --> 01:10:18,041

uh generally i think the the spirit is

2109

01:10:18,041 --> 01:10:20,041

relatively festive and

2110

01:10:20,041 --> 01:10:21,708

excited about the discovery of these

2111

01:10:21,708 --> 01:10:24,750

exoplanets um there's no sensing no sense

2112

01:10:24,750 --> 01:10:25,875

of dread or anything of

2113

01:10:25,875 --> 01:10:27,500

that nature right yeah

2114

01:10:27,500 --> 01:10:28,958

that's exciting and great well there's

2115

01:10:28,958 --> 01:10:31,083

some dread steven hawking before he

2116

01:10:31,083 --> 01:10:31,916

passed away and i think

2117

01:10:31,916 --> 01:10:33,916

neil de gras tiches said as well they're

2118

01:10:33,916 --> 01:10:35,041

worried some advanced

2119

01:10:35,041 --> 01:10:36,791

civilization is gonna invade us and

2120

01:10:36,791 --> 01:10:39,416

kill us all so some scientists have have

2121

01:10:39,416 --> 01:10:41,750

a sense of dread um i don't i'm

2122

01:10:41,750 --> 01:10:42,541

optimistic so i join you

2123

01:10:42,833 --> 01:10:44,875

with that with that that mood even

2124

01:10:44,875 --> 01:10:45,666

generally speaking i think

2125

01:10:45,666 --> 01:10:46,833

if i went to a person in the

2126

01:10:46,833 --> 01:10:48,458

street they would think discovering that

2127

01:10:48,458 --> 01:10:51,083

is a cool and good thing and but when we

2128

01:10:51,083 --> 01:10:53,666

talk about potentially

2129

01:10:53,666 --> 01:10:55,583

zooming into where we are here and saying

2130

01:10:55,583 --> 01:10:57,041

there might be things

2131

01:10:57,041 --> 01:11:00,000

closer um that suddenly starts

2132

01:11:00,000 --> 01:11:01,375

changing the conversation a bit and

2133

01:11:01,375 --> 01:11:02,500

making it less palatable

2134

01:11:02,500 --> 01:11:04,375

it suddenly becomes fantasy

2135

01:11:04,375 --> 01:11:07,375

suddenly becomes uh something that um you

2136

01:11:07,375 --> 01:11:08,750

respond to with laughter

2137

01:11:08,750 --> 01:11:10,875

yes um and you you distance

2138

01:11:11,291 --> 01:11:13,375

yourself from that person almost uh

2139

01:11:13,375 --> 01:11:16,250

psychologically yes what's the difference

2140

01:11:16,250 --> 01:11:17,416

the difference is is the

2141

01:11:17,416 --> 01:11:20,041

second half of of what i said because

2142

01:11:20,041 --> 01:11:22,000

it's still controversial

2143

01:11:22,000 --> 01:11:24,333

whether life can travel the universe

2144

01:11:24,333 --> 01:11:25,916

easily and that's not just in the

2145

01:11:25,916 --> 01:11:26,583

scientific community like

2146

01:11:26,583 --> 01:11:28,041

you said it's everywhere in the

2147

01:11:28,041 --> 01:11:30,500

public so there's two separate things

2148

01:11:30,500 --> 01:11:32,583

there does life exist and

2149

01:11:32,583 --> 01:11:34,125

then there's a sub question there

2150

01:11:34,125 --> 01:11:35,916

intelligent life you know versus plants

2151

01:11:35,916 --> 01:11:37,166

you know non-intelligent

2152

01:11:37,166 --> 01:11:38,875

animals things like that versus

2153

01:11:39,250 --> 01:11:43,125

can it get here these are very separate

2154

01:11:43,125 --> 01:11:45,541

because it's almost like and

2155

01:11:45,541 --> 01:11:46,500

this is not just scientists

2156

01:11:46,500 --> 01:11:48,583

like the public you said it's cool are

2157

01:11:48,583 --> 01:11:49,625

there aliens oh they're

2158

01:11:49,625 --> 01:11:51,791

over there that's fine oh

2159

01:11:51,791 --> 01:11:53,458

they're so far away they'll never get

2160

01:11:53,458 --> 01:11:55,416

here that that's that's

2161

01:11:55,416 --> 01:11:58,000

okay but they're here suddenly

2162

01:11:58,000 --> 01:12:01,916

what happens is our ontological security

2163

01:12:01,916 --> 01:12:02,875

is threatened that's

2164

01:12:02,875 --> 01:12:03,916

what Alexander professor

2165

01:12:04,500 --> 01:12:06,041

Alexander Wendt calls it he's talked

2166

01:12:06,041 --> 01:12:07,833

about you know UAPs and

2167

01:12:07,833 --> 01:12:09,666

he's asked the tough question

2168

01:12:09,666 --> 01:12:11,416

could some of them actually be non-human

2169

01:12:11,416 --> 01:12:12,125

craft he's actually

2170

01:12:12,125 --> 01:12:13,666

asked that tough question

2171

01:12:13,666 --> 01:12:15,541

and he says that this threatens our

2172

01:12:15,541 --> 01:12:17,333

ontological security so what

2173

01:12:17,333 --> 01:12:18,666

that means is humanity is no

2174

01:12:18,666 --> 01:12:21,625

longer top dog and that scares the hell

2175

01:12:21,625 --> 01:12:23,916

out of us when it shouldn't

2176

01:12:23,916 --> 01:12:25,208

scientists of all people should

2177

01:12:25,208 --> 01:12:28,125

know history shows we're never top dog

2178

01:12:28,125 --> 01:12:29,166

this is called the you know the

2179

01:12:29,166 --> 01:12:30,083

Copernican principle we

2180

01:12:30,375 --> 01:12:31,833

found out we're not at the center of the

2181

01:12:31,833 --> 01:12:33,000

universe and we seem to

2182

01:12:33,000 --> 01:12:34,625

learn that over and over again

2183

01:12:34,625 --> 01:12:36,375

and that used to be a religious thing but

2184

01:12:36,375 --> 01:12:38,416

now it's a scientific thing now

2185

01:12:38,416 --> 01:12:39,208

scientists are afraid of

2186

01:12:39,208 --> 01:12:41,375

not being top dog now it's no longer you

2187

01:12:41,375 --> 01:12:42,708

know the priests and bishops

2188

01:12:42,708 --> 01:12:44,041

who are like oh you can't you

2189

01:12:44,041 --> 01:12:45,625

know now you know they're telling us

2190

01:12:45,625 --> 01:12:47,583

humans you know humans are sinners

2191

01:12:47,583 --> 01:12:48,500

meanwhile scientists are

2192

01:12:48,500 --> 01:12:51,666

like oh humans are awesome we're the best

2193

01:12:51,666 --> 01:12:52,458

we figure we're gonna

2194

01:12:52,458 --> 01:12:54,000

figure everything out when

2195

01:12:54,333 --> 01:12:56,500

I think that's bad that's like that's

2196

01:12:56,500 --> 01:12:58,708

what religious dogma used

2197

01:12:58,708 --> 01:13:00,166

to do and still does in some

2198

01:13:00,166 --> 01:13:02,166

cases but now it's the scientists who are

2199

01:13:02,166 --> 01:13:04,250

afraid of not being top dog

2200

01:13:04,250 --> 01:13:05,541

so I think that's the answer

2201  
01:13:05,541 --> 01:13:08,333  
to your question we are so afraid that if

2202  
01:13:08,333 --> 01:13:10,250  
there's something else a

2203  
01:13:10,250 --> 01:13:13,125  
non-human intelligent species

2204  
01:13:13,125 --> 01:13:17,125  
we are not ready to no longer be the

2205  
01:13:17,125 --> 01:13:18,875  
pinnacle of if you're

2206  
01:13:18,875 --> 01:13:20,166  
religious pinnacle of creation or

2207  
01:13:20,708 --> 01:13:24,041  
pinnacle of evolution we're afraid and I

2208  
01:13:24,041 --> 01:13:26,916  
personally embrace that I would love to

2209  
01:13:26,916 --> 01:13:28,541  
meet aliens that are

2210  
01:13:28,541 --> 01:13:29,791  
smarter than humans think of what we

2211  
01:13:29,791 --> 01:13:31,791  
could learn I don't have any

2212  
01:13:31,791 --> 01:13:33,958  
problem with meeting non-human

2213  
01:13:33,958 --> 01:13:37,458

entities I think it's I think it's great

2214

01:13:37,458 --> 01:13:39,166

that um that human wouldn't

2215

01:13:39,166 --> 01:13:41,000

be top dog do you think that

2216

01:13:41,000 --> 01:13:43,125

there's an analogy between the emotions

2217

01:13:43,125 --> 01:13:44,625

felt the fear felt about

2218

01:13:44,625 --> 01:13:46,708

the potential for AI as the

2219

01:13:47,291 --> 01:13:49,875

emotions that are felt for the potential

2220

01:13:49,875 --> 01:13:51,458

of extraterrestrials I

2221

01:13:51,458 --> 01:13:52,916

think they're very similar

2222

01:13:52,916 --> 01:13:56,458

with one major difference the the with

2223

01:13:56,458 --> 01:13:57,208

extraterrestrials is

2224

01:13:57,208 --> 01:13:58,791

worse because we feel we can't

2225

01:13:58,791 --> 01:14:01,916

control it with AI yes there are people

2226

01:14:01,916 --> 01:14:02,916

who say we can't control it

2227

01:14:02,916 --> 01:14:03,833

but there's a huge difference

2228

01:14:03,833 --> 01:14:06,916

we're making the AI right we're we're

2229

01:14:06,916 --> 01:14:08,000

still writing the code

2230

01:14:08,000 --> 01:14:09,291

like we still don't have self

2231

01:14:09,291 --> 01:14:12,000

replicating robots and so it's a similar

2232

01:14:12,000 --> 01:14:13,041

fear but I think the

2233

01:14:13,041 --> 01:14:14,416

extraterrestrial one's even worse

2234

01:14:14,833 --> 01:14:17,000

because it's something completely outside

2235

01:14:17,000 --> 01:14:18,583

of human control for AI

2236

01:14:18,583 --> 01:14:20,500

we feel like oh we'll pass

2237

01:14:20,500 --> 01:14:22,791

some laws and everything will be fine

2238

01:14:22,791 --> 01:14:24,000

again not saying that's the

2239

01:14:24,000 --> 01:14:25,416

case but I'm saying that's how

2240

01:14:25,416 --> 01:14:27,541

some people feel oh we'll just pass a few

2241

01:14:27,541 --> 01:14:28,500

laws and it'll be fine

2242

01:14:28,500 --> 01:14:29,625

whether we can or we can't

2243

01:14:29,625 --> 01:14:32,375

doesn't matter we believe we can exactly

2244

01:14:32,375 --> 01:14:33,250

exactly whereas with

2245

01:14:33,250 --> 01:14:34,791

extraterrestrials we know that's not

2246

01:14:34,791 --> 01:14:36,625

going to happen you're going to pass some

2247

01:14:36,625 --> 01:14:37,625

law against

2248

01:14:37,625 --> 01:14:39,125

extraterrestrials if we're they're here

2249

01:14:39,125 --> 01:14:40,708

they're here they have better tech than

2250

01:14:40,708 --> 01:14:42,500

us there is nothing we can

2251

01:14:42,500 --> 01:14:44,208

do about it whereas with AI

2252

01:14:44,750 --> 01:14:47,625

we can at least give ourselves a

2253

01:14:47,625 --> 01:14:49,458

comforting lie that oh

2254

01:14:49,458 --> 01:14:52,125

it'll be fine AI will be fine

2255

01:14:52,125 --> 01:14:54,416

but with extraterrestrials we can't even

2256

01:14:54,416 --> 01:14:56,791

run away to that comfort

2257

01:14:56,791 --> 01:15:01,125

we're asking people to process a lot of

2258

01:15:01,125 --> 01:15:03,041

potential information as

2259

01:15:03,041 --> 01:15:05,083

far as their you know their

2260

01:15:05,083 --> 01:15:08,000

ontological understanding what if we were

2261

01:15:08,000 --> 01:15:09,666

to flip this the script a

2262

01:15:09,666 --> 01:15:11,500

little bit for you instead of

2263

01:15:11,833 --> 01:15:13,958

us potentially and I don't know how we do

2264

01:15:13,958 --> 01:15:15,375

it and that is irrelevant

2265

01:15:15,375 --> 01:15:17,583

but instead of you searching

2266

01:15:17,583 --> 01:15:20,583

for incontrovertible proof of something

2267

01:15:20,583 --> 01:15:22,583

anomalous that has high has a potential

2268

01:15:22,583 --> 01:15:24,291

to be extraterrestrial

2269

01:15:24,291 --> 01:15:25,750

what if you were looking and you found

2270

01:15:25,750 --> 01:15:28,541

incontrovertible proof

2271

01:15:28,541 --> 01:15:30,458

that there were no et

2272

01:15:30,458 --> 01:15:32,500

whatsoever how would how would you

2273

01:15:32,500 --> 01:15:34,833

attempt to integrate that that's a good

2274

01:15:34,833 --> 01:15:35,666

question but I'm not

2275

01:15:35,666 --> 01:15:37,166

I don't know how that's possible because

2276

01:15:37,166 --> 01:15:38,416

you can always say oh

2277

01:15:38,416 --> 01:15:39,458

there's some more disangalaxy don't

2278

01:15:39,708 --> 01:15:41,500

worry about if it's possible yeah but

2279

01:15:41,500 --> 01:15:42,583

it's just as a thought

2280

01:15:42,583 --> 01:15:44,750

exercise because it's that type of

2281

01:15:44,750 --> 01:15:46,500

shift in mindset that we're potentially

2282

01:15:46,500 --> 01:15:48,000

asking other people to go

2283

01:15:48,000 --> 01:15:50,041

through yeah so I don't know

2284

01:15:50,041 --> 01:15:51,708

is there anything to be gained by going

2285

01:15:51,708 --> 01:15:52,583

through that thought

2286

01:15:52,583 --> 01:15:55,000

exercise I mean yeah it's that it's

2287

01:15:55,000 --> 01:15:57,333

a possibility even though I said earlier

2288

01:15:57,333 --> 01:15:59,333

I think it's a almost 100

2289

01:15:59,333 --> 01:16:01,250

that there's life out there

2290

01:16:01,250 --> 01:16:04,416

there is I don't think it's possible but

2291

01:16:04,416 --> 01:16:06,333

one could say what let's say let's

2292

01:16:06,333 --> 01:16:06,708

because you said let's

2293

01:16:07,000 --> 01:16:09,208

not worry about how that would happen so

2294

01:16:09,208 --> 01:16:10,333

let's hypothetically

2295

01:16:10,333 --> 01:16:12,458

speaking say it turns out the

2296

01:16:12,458 --> 01:16:15,291

probability of life forming is so

2297

01:16:15,291 --> 01:16:17,333

astronomically small again that's not

2298

01:16:17,333 --> 01:16:18,458

what biology currently

2299

01:16:18,458 --> 01:16:20,250

says that's what we used to think years

2300

01:16:20,250 --> 01:16:21,125

ago but we have the

2301

01:16:21,125 --> 01:16:22,916

opposite but let's say we're wrong

2302

01:16:22,916 --> 01:16:24,500

and it turns out what we thought 50 years

2303

01:16:24,500 --> 01:16:26,458

ago was correct and life is

2304

01:16:26,458 --> 01:16:28,875

very very rare and let's say

2305

01:16:28,875 --> 01:16:31,041

it turns out we are alone again so

2306

01:16:31,041 --> 01:16:33,000

improbable big universe and then how

2307

01:16:33,000 --> 01:16:33,500

would you prove that but

2308

01:16:33,875 --> 01:16:37,291

putting that aside I think you're saying

2309

01:16:37,291 --> 01:16:38,666

how would I react or how

2310

01:16:38,666 --> 01:16:40,000

would people I guess I wonder you

2311

01:16:40,000 --> 01:16:42,291

know would you try to you know address

2312

01:16:42,291 --> 01:16:44,000

that through solutions of science or

2313

01:16:44,000 --> 01:16:44,833

would you address that

2314

01:16:44,833 --> 01:16:47,166

through solutions of perhaps religion or

2315

01:16:47,166 --> 01:16:50,041

something external to you know a

2316

01:16:50,041 --> 01:16:50,791

quantitative understanding

2317

01:16:50,791 --> 01:16:53,750

of the universe yeah I'm not sure what

2318

01:16:53,750 --> 01:16:54,666

science could do with that

2319

01:16:54,666 --> 01:16:55,583

right it changes things if

2320

01:16:55,916 --> 01:16:59,625

then humans are the only ones around that

2321

01:16:59,625 --> 01:17:03,416

would definitely it would

2322

01:17:03,416 --> 01:17:05,583

definitely that's a it's a

2323

01:17:05,583 --> 01:17:09,500

that's a lot of empty space I think it's

2324

01:17:09,500 --> 01:17:12,166

just for most people that

2325

01:17:12,166 --> 01:17:13,916

would be more comforting though

2326

01:17:13,916 --> 01:17:15,375

because we don't want to think about as

2327

01:17:15,375 --> 01:17:16,666

you said about other

2328

01:17:16,666 --> 01:17:18,541

other intelligent life forms

2329

01:17:18,541 --> 01:17:20,750

personally I would be it wouldn't be a

2330

01:17:20,750 --> 01:17:23,375

big paradigm shift for for me it would

2331

01:17:23,375 --> 01:17:24,000

just be disappointing

2332

01:17:25,166 --> 01:17:27,875

and so the but disappointment in

2333

01:17:27,875 --> 01:17:29,291

something that isn't real that's not

2334

01:17:29,291 --> 01:17:31,125

something science deals with

2335

01:17:31,125 --> 01:17:34,333

right that's more of a yeah that's more

2336

01:17:34,333 --> 01:17:35,916

philosophy as you said philosophy

2337

01:17:35,916 --> 01:17:37,250

religion ethics things like

2338

01:17:37,250 --> 01:17:39,791

that so much of science is based around

2339

01:17:39,791 --> 01:17:41,250

you know the median

2340

01:17:41,250 --> 01:17:43,833

we're not special necessarily

2341

01:17:43,833 --> 01:17:45,625

exactly that's the kapurnikin principle

2342

01:17:45,625 --> 01:17:47,083

certainly and this this would

2343

01:17:47,083 --> 01:17:48,666

flip that script on its head

2344

01:17:48,666 --> 01:17:50,208

and that's why I wonder you know if we

2345

01:17:50,208 --> 01:17:51,416

can use this exercise as a

2346

01:17:51,416 --> 01:17:52,000

way of perhaps understanding how

2347

01:17:52,916 --> 01:17:56,333

people that already interpret their place

2348

01:17:56,333 --> 01:17:57,750

in a potentially empty

2349

01:17:57,750 --> 01:17:59,250

universe what they would turn to

2350

01:17:59,250 --> 01:18:01,416

so can we make you know scientific

2351

01:18:01,416 --> 01:18:02,791

arguments to someone that's highly

2352

01:18:02,791 --> 01:18:03,833

religious that thanks to

2353

01:18:03,833 --> 01:18:05,250

universe is empty is that going to change

2354

01:18:05,250 --> 01:18:07,083

their mind no and I don't think we

2355

01:18:07,083 --> 01:18:08,000

necessarily have the

2356

01:18:08,000 --> 01:18:09,375

answers to these but I think these are

2357

01:18:09,375 --> 01:18:11,250

some of the questions that socio

2358

01:18:11,250 --> 01:18:12,708

sociologists and other

2359

01:18:12,708 --> 01:18:15,666

you know professionals that can start to

2360

01:18:15,666 --> 01:18:17,166

engage and better

2361

01:18:17,166 --> 01:18:18,000

understand once we have you know more

2362

01:18:19,333 --> 01:18:23,541

broad buy-in from the academic community

2363

01:18:23,541 --> 01:18:25,208

I think yeah it's

2364

01:18:25,208 --> 01:18:28,291

really hard because you know

2365

01:18:28,291 --> 01:18:31,250

we don't have you know tv shoot tv show

2366

01:18:31,250 --> 01:18:32,291

news programs everyone

2367

01:18:32,291 --> 01:18:34,541

watches together everyone

2368

01:18:34,541 --> 01:18:36,708

goes and finds their echo chamber and so

2369

01:18:36,708 --> 01:18:37,375

it's really hard to

2370

01:18:37,375 --> 01:18:38,666

convince anyone of anything these

2371

01:18:38,666 --> 01:18:40,375

days because if you're liberal you watch

2372

01:18:40,375 --> 01:18:41,458

the liberal stuff if

2373

01:18:41,458 --> 01:18:42,125

you're conservative you watch

2374

01:18:42,125 --> 01:18:43,750

the conservative stuff you can ignore all

2375

01:18:43,750 --> 01:18:45,125

the other data and that's

2376

01:18:45,125 --> 01:18:45,666

really really bad and so

2377

01:18:46,500 --> 01:18:48,666

I think it would be really hard to

2378

01:18:48,666 --> 01:18:53,791

convince people in either direction of

2379

01:18:53,791 --> 01:18:55,083

you've you've been you know

2380

01:18:55,083 --> 01:18:58,041

for sure you know from your religion that

2381

01:18:58,041 --> 01:18:59,125

the universe is empty

2382

01:18:59,125 --> 01:19:01,083

and humans are all that is

2383

01:19:01,083 --> 01:19:04,041

or the opposite and how do you switch and

2384

01:19:04,041 --> 01:19:07,916

that's very very challenging

2385

01:19:07,916 --> 01:19:09,625

the way I would approach it

2386

01:19:09,625 --> 01:19:11,916

but this is only me other people I know

2387

01:19:11,916 --> 01:19:13,041

other scientists who just

2388

01:19:13,041 --> 01:19:14,541

give up but but me I wouldn't

2389

01:19:15,500 --> 01:19:17,916

have a problem talking to people for

2390

01:19:17,916 --> 01:19:22,208

example if if someone is deeply uh

2391

01:19:22,208 --> 01:19:22,916

concerned because they

2392

01:19:22,916 --> 01:19:26,916

thought humanity are top dog from a

2393

01:19:26,916 --> 01:19:28,333

religious perspective I'd

2394

01:19:28,333 --> 01:19:30,375

say hey you know didn't Jesus

2395

01:19:30,375 --> 01:19:32,875

say be humble like me so it's all about

2396

01:19:32,875 --> 01:19:34,125

humility so that's why there

2397

01:19:34,125 --> 01:19:35,750

are more advanced aliens to

2398

01:19:35,750 --> 01:19:38,208

teach you more humility there are ways

2399

01:19:38,208 --> 01:19:39,916

there are ways to discuss this in different contexts from

2400

01:19:40,875 --> 01:19:44,041

religious and ethical contexts but I'm

2401

01:19:44,041 --> 01:19:45,041

not saying it's not going

2402

01:19:45,041 --> 01:19:47,166

to be a very very difficult

2403

01:19:47,166 --> 01:19:49,958

challenge um but I do think you're trying

2404

01:19:49,958 --> 01:19:51,166

to make an analogy but I

2405

01:19:51,166 --> 01:19:52,750

don't think it's symmetric I think

2406

01:19:52,750 --> 01:19:55,375

it's easier for everybody including

2407

01:19:55,375 --> 01:19:57,916

science just accept humanities alone

2408

01:19:57,916 --> 01:19:59,458

that's fine for I think

2409

01:19:59,458 --> 01:20:01,541

literally everybody to accept but the

2410

01:20:01,541 --> 01:20:03,083

other direction just is so

2411

01:20:03,083 --> 01:20:03,750

much more so much more difficult

2412

01:20:04,125 --> 01:20:06,500

so much more difficult for for for many

2413

01:20:06,500 --> 01:20:09,000

people and I think the reason why is

2414

01:20:09,000 --> 01:20:10,416

because well that's all the

2415

01:20:10,416 --> 01:20:12,500

evidence we have so far as humanity is

2416

01:20:12,500 --> 01:20:16,041

alone where so the other the other um

2417

01:20:16,041 --> 01:20:17,791

direction is is a radical

2418

01:20:17,791 --> 01:20:19,166

shift because even though we have all

2419

01:20:19,166 --> 01:20:21,208

this evidence of exoplanets like I said

2420

01:20:21,208 --> 01:20:22,416

earlier that's not well

2421

01:20:22,416 --> 01:20:24,250

known by everybody you said people man on

2422

01:20:24,250 --> 01:20:25,250

the streets excited by

2423

01:20:25,250 --> 01:20:27,000

these discoveries most people

2424

01:20:27,000 --> 01:20:29,291

don't know there are 8 000 exoplanets

2425

01:20:29,291 --> 01:20:30,166

we've discovered people

2426

01:20:30,166 --> 01:20:31,041

start arguing about whether

2427

01:20:31,458 --> 01:20:33,166

Pluto is a planet people are still trying

2428

01:20:33,166 --> 01:20:34,416

to memorize the names of

2429

01:20:34,416 --> 01:20:35,250

the eight or nine planets

2430

01:20:35,250 --> 01:20:38,333

our system nobody learns in school like

2431

01:20:38,333 --> 01:20:40,083

not in sixth seventh grade

2432

01:20:40,083 --> 01:20:41,416

or high school nobody learns

2433

01:20:41,416 --> 01:20:43,041

that there are thousands of exoplanets

2434

01:20:43,041 --> 01:20:44,375

nobody learns that we still

2435

01:20:44,375 --> 01:20:46,500

learn about mercury, venus,

2436

01:20:46,500 --> 01:20:49,041

earth, you know like nobody is learning

2437

01:20:49,041 --> 01:20:50,333

about these exoplanet

2438

01:20:50,333 --> 01:20:51,958

discoveries um so they're in

2439

01:20:51,958 --> 01:20:54,166

the popular press in the media but

2440

01:20:54,166 --> 01:20:56,458

they're not covered in the

2441

01:20:56,458 --> 01:20:57,500

middle school high school science

2442

01:20:57,916 --> 01:20:59,625

textbook as far as I know I'm sure that

2443

01:20:59,625 --> 01:21:01,500

varies from state to state so I'm

2444

01:21:01,500 --> 01:21:02,791

speaking in generalities

2445

01:21:02,791 --> 01:21:04,583

so I know some listener will say oh yeah

2446

01:21:04,583 --> 01:21:06,500

my kid is learning but not

2447

01:21:06,500 --> 01:21:07,875

all school districts are equal

2448

01:21:07,875 --> 01:21:09,958

we know this education is different

2449

01:21:09,958 --> 01:21:11,833

different states different cities and

2450

01:21:11,833 --> 01:21:13,625

from my understanding

2451  
01:21:13,625 --> 01:21:15,708  
from what I've seen people aren't are not

2452  
01:21:15,708 --> 01:21:16,750  
learning about these

2453  
01:21:16,750 --> 01:21:19,083  
discoveries and so going back to your

2454  
01:21:19,083 --> 01:21:21,500  
point about changing people's minds who

2455  
01:21:21,500 --> 01:21:23,708  
have things one way you can't

2456  
01:21:23,708 --> 01:21:24,875  
do that if people aren't even

2457  
01:21:25,208 --> 01:21:27,791  
getting the basic facts and data from a

2458  
01:21:27,791 --> 01:21:30,166  
young age so education you

2459  
01:21:30,166 --> 01:21:31,708  
think would be key in helping

2460  
01:21:31,708 --> 01:21:34,208  
people be better informed about this yeah

2461  
01:21:34,208 --> 01:21:35,625  
people aren't really

2462  
01:21:35,625 --> 01:21:37,041  
informed about recent discoveries

2463  
01:21:37,041 --> 01:21:39,875

like exoplanets and astronomy and so I

2464

01:21:39,875 --> 01:21:41,125

think people are are

2465

01:21:41,125 --> 01:21:43,500

ready to accept that humanity

2466

01:21:43,500 --> 01:21:45,458

may be entirely alone but we're not ready

2467

01:21:45,458 --> 01:21:47,750

to accept um the

2468

01:21:47,750 --> 01:21:50,000

presence of physical non-human

2469

01:21:50,000 --> 01:21:51,333

intelligence but you know from a

2470

01:21:51,333 --> 01:21:52,125

religious perspective there

2471

01:21:52,125 --> 01:21:53,125

are you know people believe

2472

01:21:53,416 --> 01:21:55,583

in angels and demons that are better than

2473

01:21:55,583 --> 01:21:57,625

humans stronger right so

2474

01:21:57,625 --> 01:22:00,416

and more intelligent and so

2475

01:22:00,416 --> 01:22:04,458

maybe you know we that maybe we are

2476

01:22:04,458 --> 01:22:07,333

underselling ourselves and maybe if

2477

01:22:07,333 --> 01:22:08,208

aliens are real maybe

2478

01:22:08,208 --> 01:22:10,208

humanity is ready to accept that and

2479

01:22:10,208 --> 01:22:13,333

maybe we're we're too we are

2480

01:22:13,333 --> 01:22:15,916

we are wrong and all the and the

2481

01:22:15,916 --> 01:22:17,750

philosophers and and and uh people like

2482

01:22:17,750 --> 01:22:18,583

alexander went what if

2483

01:22:18,583 --> 01:22:19,833

they're wrong and humanity will be

2484

01:22:20,083 --> 01:22:22,458

like okay that's cool i mean or they'll

2485

01:22:22,458 --> 01:22:24,125

be mass panic and blah blah

2486

01:22:24,125 --> 01:22:25,458

blah i'm not i'm not convinced

2487

01:22:25,458 --> 01:22:29,500

that'd be mass panic um again aliens are

2488

01:22:29,500 --> 01:22:30,708

only one hypothesis for

2489

01:22:30,708 --> 01:22:32,250

uaps they're one of my favorite

2490

01:22:32,250 --> 01:22:34,208

for obvious reasons you know the

2491

01:22:34,208 --> 01:22:35,750

anomalous velocities and

2492

01:22:35,750 --> 01:22:37,958

accelerations they're consistent

2493

01:22:37,958 --> 01:22:40,000

with with craft with spacecraft with good

2494

01:22:40,000 --> 01:22:40,958

spacecraft my my

2495

01:22:40,958 --> 01:22:41,666

colleague professor kevin

2496

01:22:41,666 --> 01:22:43,791

khanuth has a published paper saying that

2497

01:22:43,791 --> 01:22:44,750

you know there are very

2498

01:22:44,750 --> 01:22:46,000

few publications as we were

2499

01:22:46,250 --> 01:22:48,083

talking about earlier on uap in real

2500

01:22:48,083 --> 01:22:50,958

journals but there is there is evidence

2501

01:22:50,958 --> 01:22:52,958

not proof but there is

2502

01:22:52,958 --> 01:22:56,250

good evidence that suggests we should we

2503

01:22:56,250 --> 01:22:57,208

should take the et

2504

01:22:57,208 --> 01:22:58,500

hypothesis seriously we shouldn't

2505

01:22:58,500 --> 01:23:00,875

laugh it off do you have any questions

2506

01:23:00,875 --> 01:23:02,833

for me perhaps that um you

2507

01:23:02,833 --> 01:23:04,375

know you've been wanting to

2508

01:23:04,375 --> 01:23:09,708

ask yeah i i do why can't why can't we

2509

01:23:09,708 --> 01:23:10,500

just see some footage

2510

01:23:10,500 --> 01:23:12,333

of this i want to see the

2511

01:23:12,583 --> 01:23:14,625

i want to have some footage of what you

2512

01:23:14,625 --> 01:23:15,791

saw and not just footage

2513

01:23:15,791 --> 01:23:16,500

because everyone can say

2514

01:23:16,500 --> 01:23:21,833

oh that was fake i want to see filier and

2515

01:23:21,833 --> 01:23:23,625

regular camera visible light

2516

01:23:23,625 --> 01:23:24,875

and i want to see write our

2517

01:23:24,875 --> 01:23:27,333

data i want to see the data because i

2518

01:23:27,333 --> 01:23:28,750

think one of the issues we

2519

01:23:28,750 --> 01:23:30,875

currently have about uap research

2520

01:23:30,875 --> 01:23:34,875

the best data is classified and that's a

2521

01:23:34,875 --> 01:23:35,750

serious problem

2522

01:23:35,750 --> 01:23:37,291

because if i'm a scientist

2523

01:23:38,125 --> 01:23:40,500

and i tell my scientist colleague hey you

2524

01:23:40,500 --> 01:23:41,208

know there was this thing

2525

01:23:41,208 --> 01:23:42,791

that was going 10,000 miles

2526

01:23:42,791 --> 01:23:45,166

per hour without a sonic boom really

2527

01:23:45,166 --> 01:23:47,291

prove it oh i can't the data is

2528

01:23:47,291 --> 01:23:48,458

classified okay well then um

2529

01:23:48,458 --> 01:23:49,750

you're you're i'm not listening to you

2530

01:23:49,750 --> 01:23:51,666

anymore this is a joke but

2531

01:23:51,666 --> 01:23:53,458

then how am i going to doubt

2532

01:23:53,458 --> 01:23:55,166

you know people like you like you know

2533

01:23:55,166 --> 01:23:56,875

are men and women in

2534

01:23:56,875 --> 01:23:58,208

uniform who've experienced these

2535

01:23:58,208 --> 01:24:00,833

things and we're going to say oh cantress

2536

01:24:00,833 --> 01:24:01,875

eyewitnesses they're all

2537

01:24:01,875 --> 01:24:02,791

crazy they don't have the data

2538

01:24:03,875 --> 01:24:05,833

the the hard data should come out and

2539

01:24:05,833 --> 01:24:07,500

i've heard all the counter arguments oh

2540

01:24:07,500 --> 01:24:08,166

we don't want russia

2541

01:24:08,166 --> 01:24:10,000

and china to know what american sensors

2542

01:24:10,000 --> 01:24:12,083

do oh come there are ways

2543

01:24:12,083 --> 01:24:14,083

around this what you you can

2544

01:24:14,083 --> 01:24:18,500

you can remove um some some of the the

2545

01:24:18,500 --> 01:24:19,916

metadata again not ideal

2546

01:24:19,916 --> 01:24:20,666

scientists will say it's still

2547

01:24:20,666 --> 01:24:22,375

not good enough but at least there's got

2548

01:24:22,375 --> 01:24:23,291

to be some kind of

2549

01:24:23,291 --> 01:24:24,458

compromise where you can remove some

2550

01:24:24,458 --> 01:24:26,833

of the information and i don't you know

2551

01:24:26,833 --> 01:24:29,708

the spy one bravo radar age

2552

01:24:29,708 --> 01:24:31,208

system things like that remove

2553

01:24:31,500 --> 01:24:33,583

some of the key information so it can't

2554

01:24:33,583 --> 01:24:34,916

be duplicated by our

2555

01:24:34,916 --> 01:24:37,333

adversaries but give out at

2556

01:24:37,333 --> 01:24:39,791

least enough information where scientists

2557

01:24:39,791 --> 01:24:41,125

can start can start

2558

01:24:41,125 --> 01:24:43,708

studying because i feel like

2559

01:24:43,708 --> 01:24:46,000

we are on an uphill battle we've got uapx

2560

01:24:46,000 --> 01:24:47,666

galley a project and maybe

2561

01:24:47,666 --> 01:24:48,916

we're going to get some hard

2562

01:24:48,916 --> 01:24:51,208

evidence but it's really annoying when

2563

01:24:51,208 --> 01:24:52,333

you stop and think for a

2564

01:24:52,333 --> 01:24:54,000

second say wait a second the

2565

01:24:54,000 --> 01:24:55,666

government's got way better evidence than

2566

01:24:55,666 --> 01:24:57,250

maybe we'll ever had with like

2567

01:24:57,250 --> 01:24:58,000

billion-dollar sensors

2568

01:24:58,916 --> 01:25:01,541

can we see that you know i i feel like

2569

01:25:01,541 --> 01:25:02,791

progress is not going to be

2570

01:25:02,791 --> 01:25:05,458

made unless science is open

2571

01:25:05,458 --> 01:25:07,458

so i've heard you know they've got over

2572

01:25:07,458 --> 01:25:08,416

they've got scientists

2573

01:25:08,416 --> 01:25:10,625

they're working on secret programs

2574

01:25:10,625 --> 01:25:12,125

that's not going to solve that's not

2575

01:25:12,125 --> 01:25:13,458

going to solve it um a

2576

01:25:13,458 --> 01:25:14,875

good analogy is the manhattan

2577

01:25:14,875 --> 01:25:16,708

project that was a secret project how

2578

01:25:16,708 --> 01:25:17,458

many scientists here you

2579

01:25:17,458 --> 01:25:19,000

had hundreds you're not

2580

01:25:19,000 --> 01:25:22,166

going to solve uap we're like the five

2581

01:25:22,166 --> 01:25:22,958

ten scientists even if they're the most brilliant

2582

01:25:23,666 --> 01:25:26,583

people you're going to need hundreds of

2583

01:25:26,583 --> 01:25:27,250

scientists you're going to need a

2584

01:25:27,250 --> 01:25:28,791

manhattan project style

2585

01:25:28,791 --> 01:25:30,291

thing you know like for to figure out

2586

01:25:30,291 --> 01:25:32,166

what uap are and in order

2587

01:25:32,166 --> 01:25:33,208

for that to happen sort of a

2588

01:25:33,208 --> 01:25:34,708

chicken and egg problem you want people

2589

01:25:34,708 --> 01:25:36,000

to take it seriously

2590

01:25:36,000 --> 01:25:38,208

enough to say that it's worth uh

2591

01:25:38,208 --> 01:25:40,041

is worth spending money on yeah well let

2592

01:25:40,041 --> 01:25:41,000

me try to answer your

2593

01:25:41,000 --> 01:25:44,250

question um so you've seen the the

2594

01:25:44,250 --> 01:25:48,333

the at flare footage um that that was

2595

01:25:48,333 --> 01:25:49,916

released because it not our

2596

01:25:49,916 --> 01:25:50,791

best answer right so exactly

2597

01:25:51,166 --> 01:25:52,958

i think to the point the point you made

2598

01:25:52,958 --> 01:25:55,416

is our best sensors are classified i

2599

01:25:55,416 --> 01:25:56,166

think that's probably

2600

01:25:56,166 --> 01:25:58,166

always going to be the case right uh if

2601

01:25:58,166 --> 01:25:58,958

we're receiving it's

2602

01:25:58,958 --> 01:26:00,458

probably because it's not the best

2603

01:26:00,458 --> 01:26:02,291

information they have yeah i think that i

2604

01:26:02,291 --> 01:26:02,958

think we could probably

2605

01:26:02,958 --> 01:26:04,291

expect that to continue but i

2606

01:26:04,291 --> 01:26:06,666

think there are mechanisms through you

2607

01:26:06,666 --> 01:26:08,000

know statistical

2608

01:26:08,000 --> 01:26:09,250

distribution and other methods that

2609

01:26:09,250 --> 01:26:13,833

you can use to um remove the classified

2610

01:26:13,833 --> 01:26:14,791

portions of the data if

2611

01:26:14,791 --> 01:26:16,541

they're well defined exactly to

2612

01:26:16,958 --> 01:26:19,208

bring out something into hopefully the

2613

01:26:19,208 --> 01:26:20,458

civil world to be able to

2614

01:26:20,458 --> 01:26:22,291

do or attack it with more

2615

01:26:22,291 --> 01:26:23,500

minds just like you said because i agree

2616

01:26:23,500 --> 01:26:25,125

i think that's is the way to

2617

01:26:25,125 --> 01:26:27,041

do it um and i think that i

2618

01:26:27,041 --> 01:26:28,791

think there are ways that that can be

2619

01:26:28,791 --> 01:26:30,416

accomplished i think um the

2620

01:26:30,416 --> 01:26:31,958

all-domain anomaly resolution

2621

01:26:31,958 --> 01:26:34,791

office that's uh working on this problem

2622

01:26:34,791 --> 01:26:37,875

now has that um has that

2623

01:26:37,875 --> 01:26:39,041

mandate but i think it's

2624

01:26:39,041 --> 01:26:40,958

uh something that they are in the process

2625

01:26:40,958 --> 01:26:42,750

of standing up um i

2626

01:26:42,750 --> 01:26:43,375

think they're really they're

2627

01:26:43,708 --> 01:26:46,208

underfunded and undermaned yeah it's i

2628

01:26:46,208 --> 01:26:47,583

think this is a serious

2629

01:26:47,583 --> 01:26:49,250

issue and it's still not taken

2630

01:26:49,250 --> 01:26:50,750

seriously enough we have congressional

2631

01:26:50,750 --> 01:26:53,333

hearings we have the a a ro

2632

01:26:53,333 --> 01:26:54,666

but i think they're they don't

2633

01:26:54,666 --> 01:26:56,000

have the money and the resources they

2634

01:26:56,000 --> 01:26:57,083

need to really tackle the

2635

01:26:57,083 --> 01:26:58,541

problem i can't feel like i

2636

01:26:58,541 --> 01:27:01,083

have to suggest that they are feeling the

2637

01:27:01,083 --> 01:27:02,125

seriousness of the issue

2638

01:27:02,125 --> 01:27:03,583

now especially with the

2639

01:27:03,583 --> 01:27:06,500

the balloon incidents the you know the

2640

01:27:06,500 --> 01:27:08,625

demonstration of a domain awareness gap

2641

01:27:08,958 --> 01:27:10,458

on the national stage i have to assume

2642

01:27:10,458 --> 01:27:12,500

it's being taken serious

2643

01:27:12,500 --> 01:27:14,708

now so i guess the other

2644

01:27:14,708 --> 01:27:16,083

the question is why are there still all

2645

01:27:16,083 --> 01:27:17,000

these problems so what is

2646

01:27:17,000 --> 01:27:18,916

the hold up well the hold

2647

01:27:18,916 --> 01:27:20,833

up is so then you gave a great example

2648

01:27:20,833 --> 01:27:22,500

with the balloons you have the wall

2649

01:27:22,500 --> 01:27:23,500

street journal saying

2650

01:27:23,500 --> 01:27:25,833

that the ufo bubble has popped and saying

2651  
01:27:25,833 --> 01:27:28,416  
it's all balloon so it's all nonsense

2652  
01:27:28,416 --> 01:27:29,208  
which you and i know

2653  
01:27:29,208 --> 01:27:31,083  
is absurd balloons don't move at

2654  
01:27:31,083 --> 01:27:32,958  
thousands of miles an hour against the

2655  
01:27:32,958 --> 01:27:34,625  
wind accelerated hundreds of g

2656  
01:27:34,958 --> 01:27:39,333  
it's absurd just because some anomalies

2657  
01:27:39,333 --> 01:27:40,916  
ended up being tiny spy

2658  
01:27:40,916 --> 01:27:43,166  
balloons doesn't mean all the

2659  
01:27:43,166 --> 01:27:44,375  
anomalies are spy balloons you're not

2660  
01:27:44,375 --> 01:27:46,625  
going to explain nimits

2661  
01:27:46,625 --> 01:27:47,875  
you're not going to explain west

2662  
01:27:47,875 --> 01:27:49,458  
coast east coast what you experience

2663  
01:27:49,458 --> 01:27:50,000

you're not going to explain

2664

01:27:50,000 --> 01:27:52,083

the roosevelt incident you can't

2665

01:27:52,083 --> 01:27:54,125

explain those all as balloons or drones

2666

01:27:54,125 --> 01:27:56,500

for that matter and so

2667

01:27:56,500 --> 01:27:58,750

every time we take three steps

2668

01:27:58,750 --> 01:28:00,708

forward we take several steps back you

2669

01:28:00,708 --> 01:28:01,750

get journalists who

2670

01:28:01,750 --> 01:28:04,208

publish hit pieces um for example

2671

01:28:04,583 --> 01:28:06,791

there were there were hit pieces uh

2672

01:28:06,791 --> 01:28:10,041

published against the um uh galler

2673

01:28:10,041 --> 01:28:11,208

project that's stupid

2674

01:28:11,208 --> 01:28:13,500

and waste of money i can tell you obvious

2675

01:28:13,500 --> 01:28:15,166

not happy with that um

2676

01:28:15,166 --> 01:28:16,666

uapx we haven't had that much

2677

01:28:16,666 --> 01:28:19,041

because we're broke but once if we start

2678

01:28:19,041 --> 01:28:19,708

publishing papers and

2679

01:28:19,708 --> 01:28:20,791

stuff i'm sure there'll be

2680

01:28:20,791 --> 01:28:22,666

we'll have our own hit pieces about how

2681

01:28:22,666 --> 01:28:23,875

this is dumb and a

2682

01:28:23,875 --> 01:28:25,375

waste of time and money

2683

01:28:25,375 --> 01:28:27,625

and so those kinds of things those

2684

01:28:27,625 --> 01:28:29,875

demoralize people you know

2685

01:28:29,875 --> 01:28:31,291

and and and and it's not just

2686

01:28:31,583 --> 01:28:34,000

uaps imagine you're working on some

2687

01:28:34,000 --> 01:28:34,958

exotic propulsion for

2688

01:28:34,958 --> 01:28:36,250

nasa or for some private

2689

01:28:36,250 --> 01:28:38,416

aerospace company and and someone

2690

01:28:38,416 --> 01:28:39,500

publishes something that

2691

01:28:39,500 --> 01:28:41,000

says oh that's stupid that'll

2692

01:28:41,000 --> 01:28:43,208

never work i mean there's historical

2693

01:28:43,208 --> 01:28:46,000

precedent for this air travel there were

2694

01:28:46,000 --> 01:28:46,916

great there were not

2695

01:28:46,916 --> 01:28:49,916

just journalists scientists said faster

2696

01:28:49,916 --> 01:28:51,250

than that they said that

2697

01:28:51,250 --> 01:28:53,125

heavier than air flying machines

2698

01:28:53,125 --> 01:28:56,333

never never will never happen one one one

2699

01:28:56,333 --> 01:28:57,333

person once wrote i think

2700

01:28:57,333 --> 01:28:58,000

it was the new york times

2701  
01:28:58,750 --> 01:29:00,791  
editorial actually it's like a century

2702  
01:29:00,791 --> 01:29:01,916  
more in the century ago

2703  
01:29:01,916 --> 01:29:04,958  
where they wrote not only is our

2704  
01:29:04,958 --> 01:29:07,125  
airplanes impossible they'll be

2705  
01:29:07,125 --> 01:29:08,958  
impossible in a thousand years and

2706  
01:29:08,958 --> 01:29:10,000  
they'll still be impossible in

2707  
01:29:10,000 --> 01:29:11,833  
a million years so what are you supposed

2708  
01:29:11,833 --> 01:29:12,958  
to do when you're up against

2709  
01:29:12,958 --> 01:29:14,916  
that right so and with uap so

2710  
01:29:14,916 --> 01:29:16,916  
it's a really tough that's a really tough

2711  
01:29:16,916 --> 01:29:18,583  
amount in a climb because

2712  
01:29:18,583 --> 01:29:20,458  
you you still have people

2713  
01:29:20,458 --> 01:29:23,625

laughing and laughing at you not with you

2714

01:29:23,625 --> 01:29:25,083

not with you at you

2715

01:29:25,083 --> 01:29:26,000

about about this this is this

2716

01:29:26,333 --> 01:29:28,458

whole endeavor and you know who little

2717

01:29:28,458 --> 01:29:29,541

green men and start making

2718

01:29:29,541 --> 01:29:32,333

fun of you um when again like we

2719

01:29:32,333 --> 01:29:34,291

said earlier even though aliens are a

2720

01:29:34,291 --> 01:29:35,291

valid hypothesis they're

2721

01:29:35,291 --> 01:29:37,375

not the only one there could

2722

01:29:37,375 --> 01:29:39,583

be some weird i don't know plasma

2723

01:29:39,583 --> 01:29:40,708

atmospheric phenomenon that we

2724

01:29:40,708 --> 01:29:42,166

don't know about that's still

2725

01:29:42,166 --> 01:29:43,708

worth studying that's still worth

2726

01:29:43,708 --> 01:29:45,291

figuring out just because it

2727

01:29:45,291 --> 01:29:46,333

may not be aliens doesn't mean

2728

01:29:46,333 --> 01:29:48,041

it's not worth studying we need to figure

2729

01:29:48,041 --> 01:29:50,416

out what it is well matt i

2730

01:29:50,416 --> 01:29:51,291

appreciate you making that climb

2731

01:29:51,500 --> 01:29:54,583

up the mountain with me i'll suggest and

2732

01:29:54,583 --> 01:29:55,333

i think there are a

2733

01:29:55,333 --> 01:29:56,666

growing number of people that are

2734

01:29:56,666 --> 01:29:58,916

willing to climb up the mountain i don't

2735

01:29:58,916 --> 01:29:59,916

think there's a lot of

2736

01:29:59,916 --> 01:30:02,250

shades of gray with the stigma

2737

01:30:02,250 --> 01:30:05,458

around this topic there's a there's a

2738

01:30:05,458 --> 01:30:06,666

wall of stigma if you're on

2739

01:30:06,666 --> 01:30:08,500

one side of it you're you're

2740

01:30:08,500 --> 01:30:09,958

completely and fully bought in on that

2741

01:30:09,958 --> 01:30:11,958

side and if you've put your

2742

01:30:11,958 --> 01:30:13,791

if you've integrated yourself

2743

01:30:13,791 --> 01:30:15,333

enough to be on the other side of that

2744

01:30:15,333 --> 01:30:16,958

stigma wall then you're

2745

01:30:16,958 --> 01:30:17,916

pretty much fully bought in on

2746

01:30:18,125 --> 01:30:21,916

that side as well um so thank you for the

2747

01:30:21,916 --> 01:30:23,125

efforts that you're doing

2748

01:30:23,125 --> 01:30:24,541

um i think they're extremely

2749

01:30:24,541 --> 01:30:27,500

valuable thank you for applying your your

2750

01:30:27,500 --> 01:30:30,750

your physics experience to

2751

01:30:30,750 --> 01:30:31,750

this other mystery that we