

T H A T

# UFO

P O D C A S T

АВИЛОВ



1  
00:00:03,990 --> 00:00:01,990  
just as we've hit record the u.s space

2  
00:00:06,550 --> 00:00:04,000  
command confirmed to the nasa

3  
00:00:08,549 --> 00:00:06,560  
directorship that an interstellar meteor

4  
00:00:10,790 --> 00:00:08,559  
discovered by a student of yours and

5  
00:00:13,910 --> 00:00:10,800  
yourself amir siraj i think i'm saying

6  
00:00:16,550 --> 00:00:13,920  
the name correctly in 2019 is indeed of

7  
00:00:19,429 --> 00:00:16,560  
interstellar origin at the detection i

8  
00:00:22,470 --> 00:00:19,439  
believe happened in 2014 which predates

9  
00:00:24,070 --> 00:00:22,480  
umuah by more than three years so this

10  
00:00:26,230 --> 00:00:24,080  
object this meteor will now be

11  
00:00:28,390 --> 00:00:26,240  
recognized as the first interstellar

12  
00:00:29,830 --> 00:00:28,400  
object ever discovered can you tell us

13  
00:00:31,349 --> 00:00:29,840

just a little bit about that and then i

14

00:00:33,670 --> 00:00:31,359

do have a question on the back of that

15

00:00:35,350 --> 00:00:33,680

as well as pertains to the equipment

16

00:00:37,270 --> 00:00:35,360

yeah so this

17

00:00:39,910 --> 00:00:37,280

discovery is very exciting for a number

18

00:00:41,030 --> 00:00:39,920

of reasons first of all

19

00:00:44,790 --> 00:00:41,040

i was

20

00:00:46,229 --> 00:00:44,800

invited to an interview in march 2019 uh

21

00:00:48,790 --> 00:00:46,239

about

22

00:00:51,670 --> 00:00:48,800

a meteor that

23

00:00:54,389 --> 00:00:51,680

was uh recognized

24

00:00:57,029 --> 00:00:54,399

around that time a few months earlier

25

00:00:59,029 --> 00:00:57,039

that was quite powerful and i read a

26

00:01:01,750 --> 00:00:59,039

little about it before the interview so

27

00:01:04,469 --> 00:01:01,760

that i'll be knowledgeable and then

28

00:01:06,230 --> 00:01:04,479

uh while reading background on meteors i

29

00:01:08,469 --> 00:01:06,240

realized well there is actually a

30

00:01:11,670 --> 00:01:08,479

catalog of meteors

31

00:01:13,670 --> 00:01:11,680

that the us government has data on and

32

00:01:15,270 --> 00:01:13,680

so then i approached my student and i

33

00:01:18,070 --> 00:01:15,280

said look why don't you check this

34

00:01:20,710 --> 00:01:18,080

catalog and see if any of the

35

00:01:23,830 --> 00:01:20,720

velocities reporter reported for these

36

00:01:26,390 --> 00:01:23,840

meteors measured by the us government

37

00:01:28,149 --> 00:01:26,400

indicate that any of these objects came

38

00:01:30,550 --> 00:01:28,159

from outside the solar system because if

39

00:01:32,550 --> 00:01:30,560

they move very fast relative to earth

40

00:01:35,510 --> 00:01:32,560

you know they might have originated from

41

00:01:36,950 --> 00:01:35,520

far away and so um

42

00:01:41,190 --> 00:01:36,960

he

43

00:01:42,950 --> 00:01:41,200

undergraduate at harvard college and so

44

00:01:45,749 --> 00:01:42,960

he went to the catalogue and looked at

45

00:01:46,789 --> 00:01:45,759

the fastest object reported relative to

46

00:01:48,950 --> 00:01:46,799

earth and

47

00:01:50,710 --> 00:01:48,960

turned out that this object was on a

48

00:01:52,469 --> 00:01:50,720

head-on collision the earth moves in

49

00:01:54,550 --> 00:01:52,479

some direction and this object came

50

00:01:56,149 --> 00:01:54,560

exactly from the opposite direction

51  
00:01:58,230 --> 00:01:56,159  
so it's not

52  
00:01:59,429 --> 00:01:58,240  
it's not necessarily unbound to the sun

53  
00:02:01,429 --> 00:01:59,439  
it could it

54  
00:02:03,350 --> 00:02:01,439  
it's probably bound to the sun it didn't

55  
00:02:06,230 --> 00:02:03,360  
come from outside the source so then he

56  
00:02:09,190 --> 00:02:06,240  
went to the second object in the list

57  
00:02:12,790 --> 00:02:09,200  
and he found that this object actually

58  
00:02:15,270 --> 00:02:12,800  
uh had a speed of 40 kilometers per

59  
00:02:16,070 --> 00:02:15,280  
second outside the solar system if you

60  
00:02:18,630 --> 00:02:16,080  
uh

61  
00:02:20,229 --> 00:02:18,640  
subtract off the the motion of the earth

62  
00:02:23,270 --> 00:02:20,239  
and then uh

63  
00:02:25,030 --> 00:02:23,280

calculate its own motion

64

00:02:27,430 --> 00:02:25,040

relative to the sun and

65

00:02:29,910 --> 00:02:27,440

and go back in time you you realize that

66

00:02:31,509 --> 00:02:29,920

he actually was very fast even outside

67

00:02:32,710 --> 00:02:31,519

the solar system so

68

00:02:34,869 --> 00:02:32,720

that was

69

00:02:36,949 --> 00:02:34,879

very exciting because it indicated that

70

00:02:38,309 --> 00:02:36,959

this object is

71

00:02:40,550 --> 00:02:38,319

interstellar

72

00:02:42,790 --> 00:02:40,560

so we wrote a a

73

00:02:46,869 --> 00:02:42,800

scientific paper about it saying well

74

00:02:49,509 --> 00:02:46,879

this object was discovered uh on january

75

00:02:51,830 --> 00:02:49,519

8 2014 at the

76

00:02:56,470 --> 00:02:51,840

five in the afternoon

77

00:02:58,470 --> 00:02:56,480

and it's uh 3.75 years before um

78

00:02:59,830 --> 00:02:58,480

and it was found

79

00:03:02,830 --> 00:02:59,840

north of

80

00:03:05,990 --> 00:03:02,840

manus island off the coast of papua new

81

00:03:08,149 --> 00:03:06,000

guinea uh and then we

82

00:03:10,309 --> 00:03:08,159

you know described the calculation and

83

00:03:11,750 --> 00:03:10,319

argued that it's the first interstellar

84

00:03:14,229 --> 00:03:11,760

object that

85

00:03:15,910 --> 00:03:14,239

was detected on earth and it was just

86

00:03:19,589 --> 00:03:15,920

missed even though it was in this

87

00:03:22,070 --> 00:03:19,599

catalog nobody actually

88

00:03:24,390 --> 00:03:22,080

wrote a paper saying this is an interest

89

00:03:26,229 --> 00:03:24,400

of interstellar origin so we submitted

90

00:03:29,270 --> 00:03:26,239

the paper in 2019

91

00:03:31,750 --> 00:03:29,280

march 2018 after my interview and

92

00:03:33,190 --> 00:03:31,760

within a few days from that then

93

00:03:34,949 --> 00:03:33,200

submitted it to the astrophysical

94

00:03:36,710 --> 00:03:34,959

journal and then we got the referee

95

00:03:38,149 --> 00:03:36,720

report back saying

96

00:03:41,430 --> 00:03:38,159

you know in that catalogue of the

97

00:03:43,350 --> 00:03:41,440

government there are no error bars

98

00:03:45,750 --> 00:03:43,360

we don't trust the government

99

00:03:47,430 --> 00:03:45,760

it's most likely this object

100

00:03:48,710 --> 00:03:47,440

has large uncertainties in the

101  
00:03:51,110 --> 00:03:48,720  
measurement

102  
00:03:52,949 --> 00:03:51,120  
and i thought to myself

103  
00:03:55,429 --> 00:03:52,959  
that makes no sense because the us

104  
00:03:57,750 --> 00:03:55,439  
government is after ballistic missiles

105  
00:04:00,789 --> 00:03:57,760  
right and they need to know whether they

106  
00:04:02,550 --> 00:04:00,799  
land on boston or new york they need

107  
00:04:04,229 --> 00:04:02,560  
very high precision so if you are

108  
00:04:05,910 --> 00:04:04,239  
telling me that the error budget should

109  
00:04:07,910 --> 00:04:05,920  
be huge

110  
00:04:09,270 --> 00:04:07,920  
at a level that would make this object

111  
00:04:10,390 --> 00:04:09,280  
bound to the sun that means the

112  
00:04:12,149 --> 00:04:10,400  
government doesn't know what they're

113  
00:04:14,710 --> 00:04:12,159

doing they can't really predict what

114

00:04:17,509 --> 00:04:14,720

ballistic missiles uh

115

00:04:19,110 --> 00:04:17,519

are you know which target that they're

116

00:04:21,030 --> 00:04:19,120

moving towards and

117

00:04:23,590 --> 00:04:21,040

i i cannot believe that you know that

118

00:04:25,670 --> 00:04:23,600

doesn't make sense so so we actually at

119

00:04:27,189 --> 00:04:25,680

the time i was sharing the board on

120

00:04:29,749 --> 00:04:27,199

physics and astronomy of the national

121

00:04:32,070 --> 00:04:29,759

academies and one of the members there

122

00:04:34,150 --> 00:04:32,080

was from los alamos so

123

00:04:36,230 --> 00:04:34,160

behind the fence of national security so

124

00:04:38,070 --> 00:04:36,240

i approached him and said

125

00:04:40,710 --> 00:04:38,080

could you please give us assurance that

126

00:04:42,469 --> 00:04:40,720

the error budget is indeed small

127

00:04:45,270 --> 00:04:42,479

so that this object is definitely of

128

00:04:46,550 --> 00:04:45,280

interstellar origin and he went back and

129

00:04:49,830 --> 00:04:46,560

discussed it

130

00:04:52,150 --> 00:04:49,840

uh and then we got an email saying yes

131

00:04:53,909 --> 00:04:52,160

we can assure you that it's interesting

132

00:04:55,909 --> 00:04:53,919

so then we went back to the referee of

133

00:04:57,670 --> 00:04:55,919

the astrophysical journal and said look

134

00:04:58,790 --> 00:04:57,680

we got this assurance

135

00:05:01,990 --> 00:04:58,800

you should accept the paper for

136

00:05:03,510 --> 00:05:02,000

publication and the referee said no i

137

00:05:05,110 --> 00:05:03,520

don't believe

138

00:05:08,150 --> 00:05:05,120

the us government this is not a public

139

00:05:10,629 --> 00:05:08,160

announcement the paper is rejected

140

00:05:13,029 --> 00:05:10,639

and you can ask yourself why

141

00:05:15,430 --> 00:05:13,039

was this referee or referees there were

142

00:05:16,870 --> 00:05:15,440

several of them so hostile

143

00:05:19,029 --> 00:05:16,880

my answer is

144

00:05:21,590 --> 00:05:19,039

because they're quote unquote experts

145

00:05:24,150 --> 00:05:21,600

they worked in this field for decades

146

00:05:26,390 --> 00:05:24,160

they do not like the idea that someone

147

00:05:28,230 --> 00:05:26,400

else that is new to their field makes a

148

00:05:31,270 --> 00:05:28,240

discovery so they would try to find any

149

00:05:33,029 --> 00:05:31,280

reason to dispute that discovery even if

150

00:05:35,110 --> 00:05:33,039

it says the us government doesn't know

151  
00:05:36,150 --> 00:05:35,120  
what they're doing

152  
00:05:38,550 --> 00:05:36,160  
so

153  
00:05:40,629 --> 00:05:38,560  
the paper was rejected

154  
00:05:41,590 --> 00:05:40,639  
and you know just

155  
00:05:43,990 --> 00:05:41,600  
uh

156  
00:05:46,790 --> 00:05:44,000  
set on on our desk for

157  
00:05:50,469 --> 00:05:46,800  
three years now so in the meantime

158  
00:05:51,749 --> 00:05:50,479  
uh we of of course informed people uh

159  
00:05:53,510 --> 00:05:51,759  
that assured us that this is

160  
00:05:54,390 --> 00:05:53,520  
interstellar and said look we need a

161  
00:05:57,270 --> 00:05:54,400  
more

162  
00:05:59,909 --> 00:05:57,280  
uh official announcement

163  
00:06:01,909 --> 00:05:59,919

and gladly after three years you can see

164

00:06:04,150 --> 00:06:01,919

how long it takes to declassify error

165

00:06:05,189 --> 00:06:04,160

bars they didn't actually declassify the

166

00:06:08,070 --> 00:06:05,199

error bar

167

00:06:10,150 --> 00:06:08,080

they just made a public announcement

168

00:06:13,029 --> 00:06:10,160

from the department of defense the

169

00:06:15,029 --> 00:06:13,039

united states space command

170

00:06:16,629 --> 00:06:15,039

and the the letter is available for

171

00:06:19,510 --> 00:06:16,639

anyone to see

172

00:06:22,150 --> 00:06:19,520

it was sent to the directorate of fen of

173

00:06:24,790 --> 00:06:22,160

nasa under the leadership of thomas

174

00:06:26,710 --> 00:06:24,800

zurbuchen who is responsible for all the

175

00:06:29,830 --> 00:06:26,720

science done at nasa

176  
00:06:31,110 --> 00:06:29,840  
and in that letter they explicitly say

177  
00:06:32,469 --> 00:06:31,120  
that

178  
00:06:39,110 --> 00:06:32,479  
the

179  
00:06:41,830 --> 00:06:39,120  
amir siraj and myself

180  
00:06:44,309 --> 00:06:41,840  
is indeed a discovery of an object from

181  
00:06:45,350 --> 00:06:44,319  
an interstellar origin

182  
00:06:49,670 --> 00:06:45,360  
and

183  
00:06:54,150 --> 00:06:51,909  
percent confidence

184  
00:06:56,629 --> 00:06:54,160  
99.999

185  
00:06:59,909 --> 00:06:56,639  
so i ask you

186  
00:07:01,749 --> 00:06:59,919  
why would there free disbelieve

187  
00:07:03,990 --> 00:07:01,759  
the original report

188  
00:07:05,790 --> 00:07:04,000

and the original email we had when the

189

00:07:08,629 --> 00:07:05,800

government is at the

190

00:07:10,870 --> 00:07:08,639

99.999 percent confident and obviously

191

00:07:12,070 --> 00:07:10,880

they would be because they have to know

192

00:07:14,629 --> 00:07:12,080

what they are doing in terms of

193

00:07:16,390 --> 00:07:14,639

monitoring the motion of objects

194

00:07:19,189 --> 00:07:16,400

you know in the sky

195

00:07:21,830 --> 00:07:19,199

right yeah so anyway this is the bottom

196

00:07:22,870 --> 00:07:21,840

line as of today this letter was

197

00:07:25,189 --> 00:07:22,880

released

198

00:07:26,469 --> 00:07:25,199

and now we know there was an

199

00:07:30,070 --> 00:07:26,479

interstellar

200

00:07:32,309 --> 00:07:30,080

uh object discovered before omua mua

201

00:07:34,790 --> 00:07:32,319

okay that's point number one

202

00:07:37,589 --> 00:07:34,800

the second point uh that it is

203

00:07:40,390 --> 00:07:37,599

significant is because this is a meteor

204

00:07:42,230 --> 00:07:40,400

what that means is it came it collided

205

00:07:43,430 --> 00:07:42,240

with the earth okay

206

00:07:45,909 --> 00:07:43,440

so

207

00:07:47,830 --> 00:07:45,919

of course it burned in

208

00:07:49,589 --> 00:07:47,840

in the atmosphere and there was a

209

00:07:51,749 --> 00:07:49,599

fireball and that's how

210

00:07:52,950 --> 00:07:51,759

it was detected from the fireball from

211

00:07:54,869 --> 00:07:52,960

the heat

212

00:07:55,830 --> 00:07:54,879

as a result of it rubbing against the

213

00:07:56,950 --> 00:07:55,840

air

214

00:08:00,150 --> 00:07:56,960

but

215

00:08:01,430 --> 00:08:00,160

something you know some relic of it may

216

00:08:03,189 --> 00:08:01,440

have landed

217

00:08:06,150 --> 00:08:03,199

in the ocean

218

00:08:07,990 --> 00:08:06,160

so we can put our hands on it

219

00:08:10,550 --> 00:08:08,000

so there are two possibilities either

220

00:08:13,029 --> 00:08:10,560

this interstellar object

221

00:08:15,189 --> 00:08:13,039

is natural you know like people

222

00:08:17,670 --> 00:08:15,199

suggested about a mua mua maybe it's a

223

00:08:20,070 --> 00:08:17,680

nitrogen iceberg maybe it's a hydrogen

224

00:08:21,909 --> 00:08:20,080

iceberg you know maybe it's a dust but

225

00:08:23,990 --> 00:08:21,919

well clearly this one is not a dust

226

00:08:26,390 --> 00:08:24,000

bunny because a dust bunny would not

227

00:08:28,629 --> 00:08:26,400

burn up like a meteor

228

00:08:31,110 --> 00:08:28,639

okay so here is an interstellar object

229

00:08:33,350 --> 00:08:31,120

that is not a dust bunny

230

00:08:36,230 --> 00:08:33,360

and you know if any piece of it landed

231

00:08:40,149 --> 00:08:36,240

in the ocean we can put our hands on it

232

00:08:42,389 --> 00:08:40,159

which we cannot do with respect to muah

233

00:08:44,630 --> 00:08:42,399

so that's the second reason why it's