



**SOCIETY
FOR
SCIENTIFIC
EXPLORATION**

Panel Discussion: Evidence for Violations of the Second Law

1
00:00:16,550 --> 00:00:15,350
okay so i'd like to make sure

2
00:00:18,150 --> 00:00:16,560
that

3
00:00:19,990 --> 00:00:18,160
all the

4
00:00:22,950 --> 00:00:20,000
speakers today

5
00:00:25,509 --> 00:00:22,960
are available for this discussion so

6
00:00:26,630 --> 00:00:25,519
that's starting with

7
00:00:28,550 --> 00:00:26,640
daniel

8
00:00:30,950 --> 00:00:28,560
and paul

9
00:00:32,709 --> 00:00:30,960
and uh james

10
00:00:33,990 --> 00:00:32,719
george

11
00:00:36,310 --> 00:00:34,000
and

12
00:00:38,470 --> 00:00:36,320
myself

13
00:00:41,190 --> 00:00:38,480

and then other people i mean

14

00:00:42,709 --> 00:00:41,200

everybody will certainly be taking part

15

00:00:45,830 --> 00:00:42,719

in this but i just want to make sure

16

00:00:47,430 --> 00:00:45,840

that those people are available

17

00:00:48,630 --> 00:00:47,440

so we're going to be recording this as

18

00:00:50,549 --> 00:00:48,640

well and

19

00:00:52,549 --> 00:00:50,559

i guess this is the view that we'll see

20

00:00:58,709 --> 00:00:52,559

in the recording

21

00:01:01,270 --> 00:00:59,910

all right

22

00:01:03,510 --> 00:01:01,280

uh let's see

23

00:01:08,230 --> 00:01:03,520

are we ready let me

24

00:01:08,240 --> 00:01:11,990

yes

25

00:01:15,030 --> 00:01:13,190

okay

26

00:01:18,070 --> 00:01:15,040

um so

27

00:01:20,950 --> 00:01:18,080

thank you this has been at least for me

28

00:01:23,190 --> 00:01:20,960

uh interesting to hear all the different

29

00:01:26,950 --> 00:01:23,200

uh presentations today

30

00:01:30,230 --> 00:01:26,960

and uh it there's

31

00:01:35,510 --> 00:01:33,350

a lot that strains our credibility our

32

00:01:39,590 --> 00:01:35,520

cred credulity

33

00:01:44,310 --> 00:01:41,590

but at the same time

34

00:01:45,749 --> 00:01:44,320

uh it really needs to be strained

35

00:01:48,230 --> 00:01:45,759

because there's

36

00:01:50,469 --> 00:01:48,240

there's uh there's there's there's a lot

37

00:01:53,350 --> 00:01:50,479

of strong evidence out there

38

00:01:54,469 --> 00:01:53,360

um so uh let's have a little bit of a

39

00:01:55,749 --> 00:01:54,479

discussion

40

00:01:59,429 --> 00:01:55,759

about that

41

00:02:02,550 --> 00:01:59,439

before we do i'd like to talk about uh

42

00:02:04,550 --> 00:02:02,560

the host for this part of the

43

00:02:06,550 --> 00:02:04,560

of the workshop

44

00:02:08,630 --> 00:02:06,560

that is the symposium

45

00:02:11,350 --> 00:02:08,640

and that is the society for scientific

46

00:02:12,710 --> 00:02:11,360

exploration the society for scientific

47

00:02:15,830 --> 00:02:12,720

exploration

48

00:02:17,510 --> 00:02:15,840

is a group of scientists who look at

49

00:02:19,270 --> 00:02:17,520

anomalies they look at scientific

50

00:02:21,910 --> 00:02:19,280

anomalies that are not necessarily

51
00:02:22,710 --> 00:02:21,920
accepted by the mainstream and examine

52
00:02:23,589 --> 00:02:22,720
them

53
00:02:25,110 --> 00:02:23,599
fairly

54
00:02:28,390 --> 00:02:25,120
rigorously

55
00:02:30,390 --> 00:02:28,400
using a thorough scientific approach

56
00:02:33,110 --> 00:02:30,400
and

57
00:02:35,350 --> 00:02:33,120
it's it's an organization that i found

58
00:02:37,910 --> 00:02:35,360
to be absolutely fascinating the the

59
00:02:40,630 --> 00:02:37,920
conferences for the sse are more

60
00:02:43,110 --> 00:02:40,640
interesting by far than any those of any

61
00:02:45,350 --> 00:02:43,120
other organization i've been to

62
00:02:48,309 --> 00:02:45,360
and so for those of you who may be

63
00:02:50,949 --> 00:02:48,319

interested i suggest you take a look

64

00:02:52,630 --> 00:02:50,959

at the ssc the society for scientific

65

00:02:54,390 --> 00:02:52,640

exploration you can you can find us

66

00:02:57,190 --> 00:02:54,400

online

67

00:03:00,149 --> 00:02:57,200

and you can join either as a full member

68

00:03:02,470 --> 00:03:00,159

as a scientist or laypeople as well

69

00:03:05,589 --> 00:03:02,480

can join as associate members

70

00:03:07,589 --> 00:03:05,599

and help the organization also read the

71

00:03:09,589 --> 00:03:07,599

various uh

72

00:03:12,149 --> 00:03:09,599

publications of the organization

73

00:03:15,990 --> 00:03:12,159

organization and there are more symposia

74

00:03:18,949 --> 00:03:16,000

like this one on other subjects

75

00:03:21,030 --> 00:03:18,959

also we the journal for scientific

76

00:03:22,790 --> 00:03:21,040

exploration is a rigorously

77

00:03:24,149 --> 00:03:22,800

peer-reviewed journal put out by the

78

00:03:27,830 --> 00:03:24,159

society

79

00:03:29,990 --> 00:03:27,840

and we are going to uh starting

80

00:03:33,430 --> 00:03:30,000

immediately after this conference

81

00:03:35,509 --> 00:03:33,440

issue two calls for papers one is a call

82

00:03:36,869 --> 00:03:35,519

for papers on

83

00:03:38,550 --> 00:03:36,879

um

84

00:03:40,309 --> 00:03:38,560

advanced propulsion

85

00:03:41,430 --> 00:03:40,319

as discussed in the first part of this

86

00:03:42,390 --> 00:03:41,440

conference

87

00:03:44,550 --> 00:03:42,400

and

88

00:03:47,110 --> 00:03:44,560

a call for papers on advanced energy

89

00:03:49,670 --> 00:03:47,120

concepts as discussed today and so all

90

00:03:52,630 --> 00:03:49,680

the speakers in particular are invited

91

00:03:55,030 --> 00:03:52,640

to submit articles to the uh journal for

92

00:03:57,270 --> 00:03:55,040

scientific exploration and you'll be

93

00:03:58,949 --> 00:03:57,280

hearing more about that in the future by

94

00:04:01,110 --> 00:03:58,959

email

95

00:04:03,670 --> 00:04:01,120

okay so

96

00:04:08,149 --> 00:04:03,680

let's uh have our little panel

97

00:04:09,589 --> 00:04:08,159

discussion here in which we uh go over

98

00:04:11,910 --> 00:04:09,599

perhaps

99

00:04:13,030 --> 00:04:11,920

some of the questions that were raised

100

00:04:14,390 --> 00:04:13,040

today

101
00:04:15,830 --> 00:04:14,400
and also

102
00:04:20,069 --> 00:04:15,840
extend

103
00:04:22,390 --> 00:04:20,079
the the questions to cover related uh

104
00:04:25,350 --> 00:04:22,400
topics

105
00:04:26,790 --> 00:04:25,360
and for this panel discussion

106
00:04:28,870 --> 00:04:26,800
i've got a little

107
00:04:32,230 --> 00:04:28,880
nasty timer

108
00:04:35,110 --> 00:04:32,240
which i'll use so that all responses

109
00:04:37,830 --> 00:04:35,120
from the panel or anybody else please be

110
00:04:39,830 --> 00:04:37,840
limited to as short as you can

111
00:04:42,629 --> 00:04:39,840
under a minute if possible but the beep

112
00:04:44,310 --> 00:04:42,639
will go off after two minutes

113
00:04:45,670 --> 00:04:44,320

just so that we can have as many

114

00:04:48,150 --> 00:04:45,680
different

115

00:04:50,710 --> 00:04:48,160
views as possible

116

00:04:53,110 --> 00:04:50,720
so the first question that i'd like to

117

00:04:54,629 --> 00:04:53,120
ask of the panelists and then

118

00:04:58,790 --> 00:04:54,639
uh have

119

00:05:01,990 --> 00:04:58,800
the general audience as well uh

120

00:05:02,790 --> 00:05:02,000
give opinions on is what would it take

121

00:05:05,189 --> 00:05:02,800
you

122

00:05:08,230 --> 00:05:05,199
to convince what would it take to

123

00:05:10,870 --> 00:05:08,240
convince you that there was a genuine

124

00:05:12,629 --> 00:05:10,880
second law violation what makes you

125

00:05:14,550 --> 00:05:12,639
skeptical and what would overcome that

126
00:05:19,189 --> 00:05:14,560
skepticism

127
00:05:24,710 --> 00:05:22,150
well i'll start i guess um

128
00:05:27,270 --> 00:05:24,720
from the uh

129
00:05:28,870 --> 00:05:27,280
from the the lab scale where i generally

130
00:05:30,150 --> 00:05:28,880
work um

131
00:05:32,550 --> 00:05:30,160
i i

132
00:05:34,469 --> 00:05:32,560
want to reiterate that uh applying the

133
00:05:36,390 --> 00:05:34,479
proper measurement techniques and the

134
00:05:39,270 --> 00:05:36,400
proper instrumentation

135
00:05:40,469 --> 00:05:39,280
uh which is uh accepted by

136
00:05:41,670 --> 00:05:40,479
um

137
00:05:53,590 --> 00:05:41,680
the

138
00:05:55,430 --> 00:05:53,600

rigorously adhered to and

139

00:05:57,990 --> 00:05:55,440

that

140

00:06:01,029 --> 00:05:58,000

the application of the the correct

141

00:06:02,469 --> 00:06:01,039

measurement systems uh including

142

00:06:03,670 --> 00:06:02,479

instrumentation

143

00:06:04,950 --> 00:06:03,680

including

144

00:06:07,909 --> 00:06:04,960

the the way

145

00:06:10,710 --> 00:06:07,919

uh the experiment is uh undertaken and

146

00:06:15,749 --> 00:06:10,720

especially the provision of

147

00:06:17,189 --> 00:06:15,759

of control experiments is uh is required

148

00:06:19,350 --> 00:06:17,199

to convince me

149

00:06:20,390 --> 00:06:19,360

that there's something there uh what we

150

00:06:24,629 --> 00:06:20,400

haven't seen

151
00:06:26,710 --> 00:06:24,639
uh too much in in the uh um or

152
00:06:29,270 --> 00:06:26,720
emphasized as much as i would like in

153
00:06:32,150 --> 00:06:29,280
this uh discussion is

154
00:06:32,830 --> 00:06:32,160
uh is the insta installation or the uh

155
00:06:35,350 --> 00:06:32,840
the

156
00:06:38,550 --> 00:06:35,360
uh

157
00:06:41,830 --> 00:06:38,560
change of the parameters you might say

158
00:06:43,830 --> 00:06:41,840
to include uh control experiments

159
00:06:48,550 --> 00:06:43,840
control experiments that

160
00:06:49,350 --> 00:06:48,560
would normally be considered uh

161
00:06:54,469 --> 00:06:49,360
to

162
00:06:55,589 --> 00:06:54,479
from a prosaic source

163
00:06:56,790 --> 00:06:55,599

so

164

00:06:59,110 --> 00:06:56,800

that's

165

00:07:01,909 --> 00:06:59,120

i i try to always emphasize

166

00:07:03,350 --> 00:07:01,919

um the provision of control experiments

167

00:07:05,990 --> 00:07:03,360

of course i'm looking at it from the

168

00:07:08,390 --> 00:07:06,000

macro or the lab scale where it's

169

00:07:11,110 --> 00:07:08,400

relatively easy to produce uh and

170

00:07:13,430 --> 00:07:11,120

consider control experiments from the

171

00:07:16,309 --> 00:07:13,440

might at the micro scale that's a

172

00:07:21,189 --> 00:07:16,319

different kettle of fish i'll stop there

173

00:07:25,909 --> 00:07:22,469

daniel

174

00:07:28,230 --> 00:07:25,919

yeah i'm adding adding on um to that

175

00:07:30,710 --> 00:07:28,240

i think it would be very useful to have

176

00:07:33,110 --> 00:07:30,720

not just experiments but a theoretical

177

00:07:35,350 --> 00:07:33,120

understanding of what's going on

178

00:07:36,390 --> 00:07:35,360

a black box is good up to a point if

179

00:07:37,430 --> 00:07:36,400

you've done sufficient number of

180

00:07:39,350 --> 00:07:37,440

controls

181

00:07:40,469 --> 00:07:39,360

if you end up buying this device

182

00:07:43,270 --> 00:07:40,479

powering a

183

00:07:44,390 --> 00:07:43,280

phone or a tv or something from walmart

184

00:07:46,150 --> 00:07:44,400

you can probably

185

00:07:47,029 --> 00:07:46,160

trust it as being a second law violator

186

00:07:49,110 --> 00:07:47,039

because

187

00:07:51,110 --> 00:07:49,120

if it's making money and they spend a

188

00:07:53,110 --> 00:07:51,120

lot of time perfecting the device it

189

00:07:54,710 --> 00:07:53,120

probably works but if you're coming if

190

00:07:56,629 --> 00:07:54,720

it's coming straight out of the lab what

191

00:07:59,110 --> 00:07:56,639

i've been disappointed in in general is

192

00:08:00,469 --> 00:07:59,120

insufficient theoretical explanations

193

00:08:02,950 --> 00:08:00,479

for what's going on

194

00:08:04,390 --> 00:08:02,960

um and it's easy to kind of hide behind

195

00:08:05,270 --> 00:08:04,400

things if you don't if you don't have

196

00:08:07,830 --> 00:08:05,280

that

197

00:08:09,670 --> 00:08:07,840

so the three basic pillars of science

198

00:08:11,110 --> 00:08:09,680

are physics right now where you have

199

00:08:13,749 --> 00:08:11,120

theory experiment and numerical

200

00:08:15,270 --> 00:08:13,759

simulation if all of those come together

201
00:08:17,670 --> 00:08:15,280
that would be a pretty convincing

202
00:08:19,990 --> 00:08:17,680
package i think comment on that philip

203
00:08:22,550 --> 00:08:20,000
anderson came out with an article 30

204
00:08:23,350 --> 00:08:22,560
years ago in physics today in which he

205
00:08:26,150 --> 00:08:23,360
said

206
00:08:30,070 --> 00:08:26,160
that one of the problems in scientific

207
00:08:32,070 --> 00:08:30,080
research today is that we don't believe

208
00:08:34,550 --> 00:08:32,080
a phenomena if we don't have a theory

209
00:08:37,190 --> 00:08:34,560
for it he said that's a mistake we need

210
00:08:39,990 --> 00:08:37,200
the measurements to lead and the theory

211
00:08:41,670 --> 00:08:40,000
to follow well yeah it's it's i agree

212
00:08:43,589 --> 00:08:41,680
with that i think i mean the proof's in

213
00:08:44,630 --> 00:08:43,599

the pudding i mean the second law is an

214

00:08:48,070 --> 00:08:44,640

experimental

215

00:08:49,670 --> 00:08:48,080

fact of nature and therefore only a

216

00:08:51,990 --> 00:08:49,680

experimental violation of it is

217

00:08:53,269 --> 00:08:52,000

sufficient to actually bring it down

218

00:08:54,790 --> 00:08:53,279

but at the same time in terms of

219

00:08:57,190 --> 00:08:54,800

convincing people

220

00:08:59,670 --> 00:08:57,200

um what i've found in in

221

00:09:02,070 --> 00:08:59,680

in my life is that until you have a

222

00:09:03,190 --> 00:09:02,080

convincing theory plus the experiment

223

00:09:05,750 --> 00:09:03,200

people aren't going to even look at

224

00:09:06,870 --> 00:09:05,760

things look at it carefully thank you

225

00:09:09,030 --> 00:09:06,880

james i think you were going to say

226

00:09:12,790 --> 00:09:09,040

something yes so

227

00:09:15,269 --> 00:09:12,800

um according to you know my result we

228

00:09:17,910 --> 00:09:15,279

now really think pretty convincing there

229

00:09:19,350 --> 00:09:17,920

are two type of energy processes

230

00:09:20,550 --> 00:09:19,360

so the title b

231

00:09:22,470 --> 00:09:20,560

is

232

00:09:26,070 --> 00:09:22,480

uh have a symmetric structure then

233

00:09:28,870 --> 00:09:26,080

nearly isothermal utilize heat energy so

234

00:09:31,430 --> 00:09:28,880

now the reason is that i think uh from

235

00:09:32,710 --> 00:09:31,440

the implication of this identification

236

00:09:34,829 --> 00:09:32,720

type b is

237

00:09:37,829 --> 00:09:34,839

you don't want to say changing second

238

00:09:41,190 --> 00:09:37,839

law it's like near local second law

239

00:09:42,150 --> 00:09:41,200

second law is based on idealized gas law

240

00:09:43,990 --> 00:09:42,160

right

241

00:09:46,230 --> 00:09:44,000

now you have i think you know remember

242

00:09:48,949 --> 00:09:46,240

the carnot cycle this is one of the way

243

00:09:51,590 --> 00:09:48,959

of saying it okay most accepted

244

00:09:53,269 --> 00:09:51,600

you have this uh kind of cycle is pv you

245

00:09:55,750 --> 00:09:53,279

know you know this whole thing right

246

00:09:57,990 --> 00:09:55,760

it's a basic idea like i saw

247

00:09:59,590 --> 00:09:58,000

so you there you are assuming i think

248

00:10:01,269 --> 00:09:59,600

it's like of course the particle and

249

00:10:03,430 --> 00:10:01,279

more all three imagine people volume

250

00:10:05,110 --> 00:10:03,440

right your 3ds okay

251
00:10:06,870 --> 00:10:05,120
and there's no concentration of

252
00:10:09,350 --> 00:10:06,880
symmetric you see the right it's

253
00:10:11,269 --> 00:10:09,360
considered all freedom right

254
00:10:12,949 --> 00:10:11,279
and then if you basically ideal gas

255
00:10:15,269 --> 00:10:12,959
though you cannot close your eye i'm

256
00:10:17,590 --> 00:10:15,279
gonna apply everywhere now in

257
00:10:18,710 --> 00:10:17,600
biochemistry we actually have like the

258
00:10:24,870 --> 00:10:18,720
kinetic

259
00:10:26,550 --> 00:10:24,880
it's

260
00:10:28,470 --> 00:10:26,560
is called um

261
00:10:30,870 --> 00:10:28,480
you know it's well developed uh for in a

262
00:10:33,910 --> 00:10:30,880
mechanic uh theory is based on certain

263
00:10:35,590 --> 00:10:33,920

assumptions you couldn't apply that that

264

00:10:37,590 --> 00:10:35,600

seriously only to

265

00:10:39,670 --> 00:10:37,600

the cases where you

266

00:10:41,750 --> 00:10:39,680

uh fit the you know the thing here like

267

00:10:43,110 --> 00:10:41,760

for example this cannot get um you know

268

00:10:45,190 --> 00:10:43,120

i'm connecting because here they cannot

269

00:10:47,190 --> 00:10:45,200

anywhere exactly we teach every year

270

00:10:49,269 --> 00:10:47,200

cannot apply into hemoglobin that's

271

00:10:51,829 --> 00:10:49,279

another example right it says though

272

00:10:54,470 --> 00:10:51,839

because the enzyme have you know it's

273

00:10:57,350 --> 00:10:54,480

not fit that definition initially okay

274

00:10:59,910 --> 00:10:57,360

now based on the idea of cash law

275

00:11:01,269 --> 00:10:59,920

that he tried to close eye to everything

276

00:11:03,829 --> 00:11:01,279

including when you have a symmetric

277

00:11:05,750 --> 00:11:03,839

structure now for our proton you you

278

00:11:06,949 --> 00:11:05,760

don't have three dimension anymore in

279

00:11:08,630 --> 00:11:06,959

the initial proton in the three

280

00:11:10,470 --> 00:11:08,640

dimension right you know if you localize

281

00:11:13,190 --> 00:11:10,480

of course they are like in

282

00:11:14,630 --> 00:11:13,200

in a liquid water yes they do

283

00:11:16,949 --> 00:11:14,640

but when they are localized on the

284

00:11:19,509 --> 00:11:16,959

surface it becomes dimensional

285

00:11:22,630 --> 00:11:19,519

so your warnings you see

286

00:11:24,550 --> 00:11:22,640

if pv is not exist anymore

287

00:11:26,310 --> 00:11:24,560

and then you still doing that thing and

288

00:11:28,630 --> 00:11:26,320

then basically you get a problem so i

289

00:11:30,710 --> 00:11:28,640

will say now we can't understand this is

290

00:11:32,790 --> 00:11:30,720

our natural occurring anywhere we want

291

00:11:35,030 --> 00:11:32,800

to say hey you know second law you're

292

00:11:36,870 --> 00:11:35,040

applies into part a

293

00:11:38,389 --> 00:11:36,880

but type you don't want to say violation

294

00:11:40,790 --> 00:11:38,399

would say if you want to challenge it we

295

00:11:42,630 --> 00:11:40,800

say challenge capability or the

296

00:11:44,470 --> 00:11:42,640

universality of second law you don't

297

00:11:46,310 --> 00:11:44,480

change the second law okay because

298

00:11:48,630 --> 00:11:46,320

second law is well well done it's you

299

00:11:51,030 --> 00:11:48,640

know we see it because you analysis

300

00:11:53,350 --> 00:11:51,040

photos absolutely well

301
00:11:55,670 --> 00:11:53,360
right you know in biochemistry we see uh

302
00:11:56,389 --> 00:11:55,680
some of those photos excellent

303
00:11:58,310 --> 00:11:56,399
yeah

304
00:11:59,350 --> 00:11:58,320
i will say you know make sure that we

305
00:12:02,470 --> 00:11:59,360
understand

306
00:12:05,829 --> 00:12:02,480
uh second apply to type a

307
00:12:07,590 --> 00:12:05,839
but you have a semester be careful okay

308
00:12:09,269 --> 00:12:07,600
yeah you can apply it close your eyes

309
00:12:11,269 --> 00:12:09,279
many projects does then you miss very

310
00:12:12,790 --> 00:12:11,279
important science i will tell them then

311
00:12:14,710 --> 00:12:12,800
people hey you know

312
00:12:16,629 --> 00:12:14,720
i need to cut you off like we just want

313
00:12:18,629 --> 00:12:16,639

to get on to the next people sure yes

314

00:12:21,910 --> 00:12:18,639

yeah yeah it's

315

00:12:24,230 --> 00:12:21,920

i let me also ask this question to paul

316

00:12:26,069 --> 00:12:24,240

uh so what would it take to convince you

317

00:12:27,750 --> 00:12:26,079

that there was a violation and what

318

00:12:32,389 --> 00:12:27,760

would it take to convince you that there

319

00:12:35,829 --> 00:12:33,430

you know

320

00:12:39,829 --> 00:12:35,839

and when daniel

321

00:12:41,110 --> 00:12:39,839

and and you and i chatted uh you know

322

00:12:43,190 --> 00:12:41,120

i've been

323

00:12:45,110 --> 00:12:43,200

i mean i'm not a big second law uh

324

00:12:47,990 --> 00:12:45,120

expert honestly

325

00:12:49,670 --> 00:12:48,000

so i looked at uh yeah in my mind i kind

326

00:12:52,389 --> 00:12:49,680

of gave up on a lot of these second law

327

00:12:54,389 --> 00:12:52,399

things in at least in my area because

328

00:12:56,310 --> 00:12:54,399

i look at

329

00:12:57,590 --> 00:12:56,320

just the brownian motion phenomena which

330

00:13:00,629 --> 00:12:57,600

is kind of at the heart of everything

331

00:13:03,110 --> 00:13:00,639

i'm doing now here's this

332

00:13:05,350 --> 00:13:03,120

particle sitting in a

333

00:13:07,829 --> 00:13:05,360

constant temperature environment

334

00:13:10,470 --> 00:13:07,839

it's transferring its energy to the

335

00:13:12,470 --> 00:13:10,480

environment and coming to a stop

336

00:13:14,629 --> 00:13:12,480

and then the environment is transferring

337

00:13:17,430 --> 00:13:14,639

energy back to it giving it kinetic

338

00:13:20,230 --> 00:13:17,440

energy and it's a cyclic process of

339

00:13:22,470 --> 00:13:20,240

of losing energy gaining energy energy

340

00:13:25,030 --> 00:13:22,480

energy i mean you couldn't develop this

341

00:13:26,710 --> 00:13:25,040

model if you said oh i'm going to stick

342

00:13:28,389 --> 00:13:26,720

with the i'm going to follow the second

343

00:13:30,949 --> 00:13:28,399

law and make sure that

344

00:13:32,230 --> 00:13:30,959

at each step of time this is uh this is

345

00:13:33,990 --> 00:13:32,240

fault so

346

00:13:37,190 --> 00:13:34,000

to me i don't know i kind of see it as a

347

00:13:39,670 --> 00:13:37,200

long time ensemble average um

348

00:13:41,990 --> 00:13:39,680

you know requirement not really

349

00:13:44,550 --> 00:13:42,000

something that is really guiding me or

350

00:13:46,790 --> 00:13:44,560

helping me you know

351

00:13:48,790 --> 00:13:46,800

find answers to to the to the problems

352

00:13:49,750 --> 00:13:48,800

i'm looking at i don't know

353

00:13:52,310 --> 00:13:49,760

daniel

354

00:13:54,550 --> 00:13:52,320

you know he has a strong opinion on a a

355

00:13:57,189 --> 00:13:54,560

deeper in i should say uh you know into

356

00:13:58,870 --> 00:13:57,199

these things uh you know i

357

00:14:01,030 --> 00:13:58,880

people ask me you know i say these

358

00:14:04,150 --> 00:14:01,040

things they that violates the

359

00:14:05,670 --> 00:14:04,160

the calvin plonkstom statement but but

360

00:14:07,590 --> 00:14:05,680

well yeah i mean you had to violate it

361

00:14:09,990 --> 00:14:07,600

just develop the kinetic theory of of

362

00:14:11,990 --> 00:14:10,000

the statistical mechanics

363

00:14:13,990 --> 00:14:12,000

so i i'm a little puzzled by the whole

364

00:14:16,550 --> 00:14:14,000

conversation in that sense in that at

365

00:14:18,790 --> 00:14:16,560

that level

366

00:14:20,069 --> 00:14:18,800

daniel do you want to respond

367

00:14:21,430 --> 00:14:20,079

uh

368

00:14:22,870 --> 00:14:21,440

i don't know i don't know what kind of

369

00:14:24,710 --> 00:14:22,880

response would be appropriate here i

370

00:14:28,150 --> 00:14:24,720

mean i do have strong opinions i may

371

00:14:30,790 --> 00:14:28,160

have after all am i not garrett but um

372

00:14:35,829 --> 00:14:30,800

the

373

00:14:38,310 --> 00:14:35,839

paul and and

374

00:14:39,670 --> 00:14:38,320

ask the question can you set up a

375

00:14:41,110 --> 00:14:39,680

situation

376

00:14:42,470 --> 00:14:41,120

where you're getting work out of your

377

00:14:43,430 --> 00:14:42,480

system

378

00:14:44,629 --> 00:14:43,440

and

379

00:14:47,189 --> 00:14:44,639

uh

380

00:14:48,389 --> 00:14:47,199

in a cyclic process turning

381

00:14:50,069 --> 00:14:48,399

heat

382

00:14:52,949 --> 00:14:50,079

into work

383

00:14:54,470 --> 00:14:52,959

and and if it keeps going that way and

384

00:14:56,389 --> 00:14:54,480

your system cools and you're getting

385

00:14:57,590 --> 00:14:56,399

worked out continuously and it keeps

386

00:14:59,430 --> 00:14:57,600

operating

387

00:15:01,750 --> 00:14:59,440

that's pretty much a second law violator

388

00:15:03,829 --> 00:15:01,760

whether you want to say so or not and

389

00:15:07,350 --> 00:15:03,839

and

390

00:15:11,750 --> 00:15:09,189

is that is is that possible with your

391

00:15:13,990 --> 00:15:11,760

device that's a simple question

392

00:15:15,990 --> 00:15:14,000

can you do that

393

00:15:19,110 --> 00:15:16,000

well well i think when we analyze our

394

00:15:22,069 --> 00:15:19,120

statistical variables uh we

395

00:15:23,990 --> 00:15:22,079

to me we definitely satisfy the first

396

00:15:26,310 --> 00:15:24,000

and second law

397

00:15:27,750 --> 00:15:26,320

in terms of the heat and the work and

398

00:15:30,470 --> 00:15:27,760

the energy

399

00:15:31,749 --> 00:15:30,480

but on short time scales

400

00:15:34,790 --> 00:15:31,759

you know

401
00:15:35,749 --> 00:15:34,800
doesn't seem to be um necessary

402
00:15:38,069 --> 00:15:35,759
right

403
00:15:40,310 --> 00:15:38,079
um but but as

404
00:15:42,310 --> 00:15:40,320
garrett i'm sorry to if i'm being asked

405
00:15:44,069 --> 00:15:42,320
to answer i'm kind of exceeding my time

406
00:15:46,150 --> 00:15:44,079
so i'll tell you what i'll back away and

407
00:15:47,910 --> 00:15:46,160
save my time for something else

408
00:15:50,069 --> 00:15:47,920
and this this is a discussion that i

409
00:15:52,310 --> 00:15:50,079
believe is going to continue for quite a

410
00:15:59,350 --> 00:15:52,320
while yeah this particular issue so

411
00:16:03,990 --> 00:16:01,430
oh yeah i'm sorry that's right it's late

412
00:16:05,910 --> 00:16:04,000
at night okay

413
00:16:08,790 --> 00:16:05,920

well i i share

414

00:16:12,150 --> 00:16:08,800

pretty much the the position of daniel

415

00:16:14,389 --> 00:16:12,160

uh if we stick to well my answer will be

416

00:16:16,710 --> 00:16:14,399

probably a trivial one and

417

00:16:19,030 --> 00:16:16,720

if we stick to the the classical

418

00:16:23,189 --> 00:16:19,040

definition or statement of the second

419

00:16:25,749 --> 00:16:23,199

law the planck and the calculus one

420

00:16:27,670 --> 00:16:25,759

well although i i am more

421

00:16:29,269 --> 00:16:27,680

of a theoretical physicist the only way

422

00:16:32,470 --> 00:16:29,279

to to convince me

423

00:16:35,509 --> 00:16:32,480

of a genuine violation of the law

424

00:16:37,189 --> 00:16:35,519

is seeing before me a device

425

00:16:39,990 --> 00:16:37,199

that when switched off

426
00:16:42,230 --> 00:16:40,000
generates a microscopic current and

427
00:16:44,389 --> 00:16:42,240
cools down the the

428
00:16:47,509 --> 00:16:44,399
um the temper the amp the ambient

429
00:16:50,470 --> 00:16:47,519
temperature around it and obviously it

430
00:16:52,790 --> 00:16:50,480
worked like it must work like this we

431
00:16:54,470 --> 00:16:52,800
don't know time limit um

432
00:16:56,710 --> 00:16:54,480
in fact every one of us

433
00:16:58,870 --> 00:16:56,720
i believe will be able to to build a

434
00:17:00,790 --> 00:16:58,880
machine like this one that work like

435
00:17:02,150 --> 00:17:00,800
this but for a limited period of time

436
00:17:04,230 --> 00:17:02,160
take for instance

437
00:17:07,270 --> 00:17:04,240
a box with inside the

438
00:17:09,990 --> 00:17:07,280

battery and uh what is called a mr an

439

00:17:13,110 --> 00:17:10,000

instant ice pack okay this this device

440

00:17:15,350 --> 00:17:13,120

will produce energy and could puts down

441

00:17:17,829 --> 00:17:15,360

the the ambient heat but

442

00:17:18,789 --> 00:17:17,839

only for a very limited period of time

443

00:17:21,510 --> 00:17:18,799

if we

444

00:17:23,029 --> 00:17:21,520

are able to to build a machine a small

445

00:17:25,270 --> 00:17:23,039

machine that

446

00:17:26,870 --> 00:17:25,280

does this work

447

00:17:30,549 --> 00:17:26,880

cyclically

448

00:17:32,070 --> 00:17:30,559

for me this is a very very good

449

00:17:33,990 --> 00:17:32,080

example of a

450

00:17:37,350 --> 00:17:34,000

machine that convinced me of the

451
00:17:38,710 --> 00:17:37,360
violation of the second law

452
00:17:41,029 --> 00:17:38,720
thank you

453
00:17:43,029 --> 00:17:41,039
um so we need to

454
00:17:45,270 --> 00:17:43,039
show cooling

455
00:17:46,870 --> 00:17:45,280
um

456
00:17:49,510 --> 00:17:46,880
would other people like to address this

457
00:17:51,270 --> 00:17:49,520
issue of of of uh what would convince

458
00:17:55,510 --> 00:17:51,280
you that the second law is violated and

459
00:18:01,029 --> 00:17:58,310
yeah i just wanted to say that uh what

460
00:18:03,230 --> 00:18:01,039
shanwy fans said to us on wednesday and

461
00:18:04,789 --> 00:18:03,240
he's one of the foremost experts on

462
00:18:06,789 --> 00:18:04,799
thermodynamics

463
00:18:08,630 --> 00:18:06,799

and he told us that hey you know

464

00:18:10,870 --> 00:18:08,640

detailed balance

465

00:18:13,350 --> 00:18:10,880

that can be broken all the time right

466

00:18:15,669 --> 00:18:13,360

it's an ensemble effect and don't worry

467

00:18:18,549 --> 00:18:15,679

about the detailed balance so i think

468

00:18:21,110 --> 00:18:18,559

that goes to your work paul

469

00:18:21,990 --> 00:18:21,120

and uh what i i kind of heard you saying

470

00:18:23,830 --> 00:18:22,000

there

471

00:18:25,270 --> 00:18:23,840

so but as far as like

472

00:18:28,230 --> 00:18:25,280

demonstrating that you violated the

473

00:18:31,430 --> 00:18:28,240

second law i go with george you know hey

474

00:18:37,990 --> 00:18:31,440

let's have definitive experimental proof

475

00:18:41,590 --> 00:18:39,510

i think it really has to come from the

476

00:18:44,630 --> 00:18:41,600

experimental side because

477

00:18:46,310 --> 00:18:44,640

entropy is so baked into just every

478

00:18:48,310 --> 00:18:46,320

theoretical model we have i mean i think

479

00:18:49,830 --> 00:18:48,320

it was opponent we said you know if your

480

00:18:51,190 --> 00:18:49,840

law disagrees with experiment your law

481

00:18:52,710 --> 00:18:51,200

is wrong but if your experiment

482

00:18:55,430 --> 00:18:52,720

disagrees with entropy your experiment's

483

00:18:56,870 --> 00:18:55,440

wrong and it's so

484

00:18:58,870 --> 00:18:56,880

baked at least how we understand these

485

00:19:00,789 --> 00:18:58,880

laws so either

486

00:19:02,390 --> 00:19:00,799

it requires like fundamentally new laws

487

00:19:03,990 --> 00:19:02,400

or there's just like a basic

488

00:19:06,470 --> 00:19:04,000

misunderstanding of our theoretical

489

00:19:08,150 --> 00:19:06,480

devices that's going on so i i just i

490

00:19:09,990 --> 00:19:08,160

don't see how it would come initially

491

00:19:12,630 --> 00:19:10,000

out of the theory i think that's the big

492

00:19:14,470 --> 00:19:12,640

mystery you know

493

00:19:15,590 --> 00:19:14,480

dustin i think you were gonna get your

494

00:19:16,390 --> 00:19:15,600

hand up

495

00:19:17,990 --> 00:19:16,400

sure

496

00:19:20,150 --> 00:19:18,000

um so i'm just gonna build upon what i

497

00:19:22,789 --> 00:19:20,160

talked about before that

498

00:19:24,390 --> 00:19:22,799

every model is a tool

499

00:19:26,710 --> 00:19:24,400

so when you ask a question and while

500

00:19:29,110 --> 00:19:26,720

you're violating

501
00:19:30,549 --> 00:19:29,120
a this model and we've already seen

502
00:19:32,950 --> 00:19:30,559
through different presentations that

503
00:19:35,750 --> 00:19:32,960
this model has changed the second law

504
00:19:37,190 --> 00:19:35,760
has had many different flavors to it

505
00:19:39,590 --> 00:19:37,200
um and

506
00:19:41,029 --> 00:19:39,600
certainly the pla the common flavor is

507
00:19:43,909 --> 00:19:41,039
that they're talking about a closed

508
00:19:45,750 --> 00:19:43,919
system and in and of itself

509
00:19:47,990 --> 00:19:45,760
it says well energy's moving from one

510
00:19:50,549 --> 00:19:48,000
thing to another so that sort of

511
00:19:53,029 --> 00:19:50,559
gives you an open system so so there's

512
00:19:56,029 --> 00:19:53,039
questions with how the the

513
00:19:58,630 --> 00:19:56,039

principle second law second principle of

514

00:20:01,110 --> 00:19:58,640

thermodynamics is actually couch

515

00:20:04,710 --> 00:20:01,120

um but then you know more importantly

516

00:20:07,029 --> 00:20:04,720

it's that every model is a tool

517

00:20:09,190 --> 00:20:07,039

and that so you're trying to get those

518

00:20:11,590 --> 00:20:09,200

different models to have certain

519

00:20:13,430 --> 00:20:11,600

properties and you know conservation of

520

00:20:17,350 --> 00:20:13,440

energy is an important property

521

00:20:19,110 --> 00:20:17,360

continuity continuous state you know uh

522

00:20:22,789 --> 00:20:19,120

physical properties is another important

523

00:20:24,149 --> 00:20:22,799

property so so the whole thing is not to

524

00:20:27,270 --> 00:20:24,159

the goal is not to say well it's

525

00:20:30,070 --> 00:20:27,280

violating uh second law it's more of can

526

00:20:31,909 --> 00:20:30,080

you create a model that has we know at

527

00:20:33,830 --> 00:20:31,919

the atomic level we know at the

528

00:20:36,549 --> 00:20:33,840

sub-particle level we know that these

529

00:20:37,990 --> 00:20:36,559

things fall apart um there are you know

530

00:20:40,070 --> 00:20:38,000

over unity

531

00:20:43,350 --> 00:20:40,080

energy systems out on the road i mean

532

00:20:45,750 --> 00:20:43,360

like hho or as maury king says it's

533

00:20:47,110 --> 00:20:45,760

really structured water devices that are

534

00:20:49,830 --> 00:20:47,120

actually powering trucks and they're

535

00:20:52,950 --> 00:20:49,840

just actually saving money on energy

536

00:20:54,789 --> 00:20:52,960

um so we we know that there's lots of

537

00:20:55,669 --> 00:20:54,799

places where our physical models break

538

00:20:57,590 --> 00:20:55,679

down

539

00:20:58,710 --> 00:20:57,600

and in all the presentations what i saw

540

00:21:00,870 --> 00:20:58,720

where people were actually pulling

541

00:21:02,950 --> 00:21:00,880

energy out are the same structures that

542

00:21:04,630 --> 00:21:02,960

i see when you know we're working with

543

00:21:06,149 --> 00:21:04,640

you know sub-particle models or

544

00:21:07,430 --> 00:21:06,159

zero-point or ether models whatever you

545

00:21:09,029 --> 00:21:07,440

want to call it

546

00:21:11,190 --> 00:21:09,039

when when you look at them all the

547

00:21:13,590 --> 00:21:11,200

properties that james talked about

548

00:21:15,190 --> 00:21:13,600

um you talked about it those are the

549

00:21:17,750 --> 00:21:15,200

same properties you see time and time

550

00:21:21,830 --> 00:21:17,760

again you know in research over the last

551
00:21:23,830 --> 00:21:21,840
180 years or so that really seemed to

552
00:21:26,710 --> 00:21:23,840
be pulling something from zero point or

553
00:21:28,950 --> 00:21:26,720
ether or what have you um so

554
00:21:31,029 --> 00:21:28,960
it's uh

555
00:21:32,149 --> 00:21:31,039
i've said my phil i think at somebody

556
00:21:33,909 --> 00:21:32,159
else's time

557
00:21:34,950 --> 00:21:33,919
okay oops

558
00:21:38,390 --> 00:21:34,960
thank you

559
00:21:41,270 --> 00:21:38,400
um okay let me go on and just uh to keep

560
00:21:43,190 --> 00:21:41,280
things moving uh uh ask a

561
00:21:46,230 --> 00:21:43,200
different and related question and that

562
00:21:47,990 --> 00:21:46,240
is why are there so many misguided

563
00:21:52,070 --> 00:21:48,000

researchers working

564

00:21:54,630 --> 00:21:52,080

on energy ideas and technologies uh

565

00:21:56,470 --> 00:21:54,640

hathaway lab has gone through zillions

566

00:21:58,870 --> 00:21:56,480

of things and really found

567

00:22:00,870 --> 00:21:58,880

no strong evidence earth tech

568

00:22:03,750 --> 00:22:00,880

international did

569

00:22:07,190 --> 00:22:03,760

similarly coulescence spent a long time

570

00:22:10,470 --> 00:22:07,200

looking in depth at cold fusion and lanr

571

00:22:13,750 --> 00:22:10,480

and found nothing why why so many people

572

00:22:15,830 --> 00:22:13,760

in this field uh so let me first ask the

573

00:22:18,549 --> 00:22:15,840

the panel to answer if anybody on the

574

00:22:19,909 --> 00:22:18,559

panel wants to i can just is this stuff

575

00:22:25,350 --> 00:22:19,919

being recorded

576

00:22:29,750 --> 00:22:27,270

i i can give a brief

577

00:22:31,270 --> 00:22:29,760

answer to that it's called short memory

578

00:22:33,669 --> 00:22:31,280

and laziness

579

00:22:36,789 --> 00:22:33,679

uh typically the

580

00:22:37,590 --> 00:22:36,799

the kind of researchers that i i uh

581

00:22:45,270 --> 00:22:37,600

have

582

00:22:48,630 --> 00:22:45,280

inability

583

00:22:51,350 --> 00:22:48,640

to consider that their ideas have

584

00:22:54,630 --> 00:22:51,360

actually uh been

585

00:22:55,630 --> 00:22:54,640

looked at and discarded in 1880

586

00:23:00,870 --> 00:22:55,640

or

587

00:23:03,909 --> 00:23:00,880

there's a very there's a there's a

588

00:23:05,190 --> 00:23:03,919

memory problem uh and i can go into all

589

00:23:06,310 --> 00:23:05,200

sorts of others but that's the first

590

00:23:10,070 --> 00:23:06,320

thing that

591

00:23:14,549 --> 00:23:12,630

thank you uh anybody else on the panel

592

00:23:15,990 --> 00:23:14,559

all right yes um

593

00:23:18,950 --> 00:23:16,000

so um

594

00:23:22,950 --> 00:23:18,960

to adding on on that um i like a pause

595

00:23:25,190 --> 00:23:22,960

work you know pause work really

596

00:23:27,590 --> 00:23:25,200

artificial human-made type of b energy

597

00:23:30,310 --> 00:23:27,600

processes using colonial motion and

598

00:23:32,230 --> 00:23:30,320

charging up now his process very clear

599

00:23:34,549 --> 00:23:32,240

he had you know the diode

600

00:23:36,549 --> 00:23:34,559

you know a pair of that is a symmetrical

601
00:23:38,470 --> 00:23:36,559
system symmetrical components so the

602
00:23:40,710 --> 00:23:38,480
whole system is systematic

603
00:23:42,310 --> 00:23:40,720
perfectly fitted the

604
00:23:43,350 --> 00:23:42,320
type of beethoven energy process so i

605
00:23:45,190 --> 00:23:43,360
was thinking

606
00:23:46,549 --> 00:23:45,200
that when you communicate you know so

607
00:23:48,710 --> 00:23:46,559
you know part of the fleet of say you

608
00:23:49,990 --> 00:23:48,720
know what is second law

609
00:23:51,590 --> 00:23:50,000
you know you want to say second law

610
00:23:53,190 --> 00:23:51,600
that's not a pie because you have a

611
00:23:54,870 --> 00:23:53,200
symmetric you know you can assign my

612
00:23:56,789 --> 00:23:54,880
paper we already published

613
00:23:58,870 --> 00:23:56,799

and you have a semester inside of my

614

00:24:00,870 --> 00:23:58,880

actual paper after then you helping me a

615

00:24:02,870 --> 00:24:00,880

lot to republish that paper

616

00:24:04,470 --> 00:24:02,880

um you can decide my paper saying you

617

00:24:06,950 --> 00:24:04,480

know now we have understand there are

618

00:24:08,390 --> 00:24:06,960

two type of processes on earth naturally

619

00:24:11,590 --> 00:24:08,400

occurring

620

00:24:14,710 --> 00:24:11,600

what you made is really a solid or

621

00:24:17,669 --> 00:24:14,720

scientific type of b process human-made

622

00:24:19,510 --> 00:24:17,679

and also daniel's uh epitome catalysis

623

00:24:21,350 --> 00:24:19,520

is also a valid

624

00:24:23,750 --> 00:24:21,360

copy energy but human-made it's not an

625

00:24:25,430 --> 00:24:23,760

actual curly hair of course

626

00:24:27,510 --> 00:24:25,440

so yeah we need to commit that because

627

00:24:28,789 --> 00:24:27,520

you say chinese second people say oh you

628

00:24:30,070 --> 00:24:28,799

know we me

629

00:24:31,909 --> 00:24:30,080

you know this kind of turn off those

630

00:24:32,950 --> 00:24:31,919

kind of feet you know your pseudo sign

631

00:24:34,310 --> 00:24:32,960

you know they immediately get that

632

00:24:36,710 --> 00:24:34,320

reaction now you understand there are

633

00:24:38,310 --> 00:24:36,720

two type of energy processes the reason

634

00:24:40,710 --> 00:24:38,320

is you have a symmetry remember the

635

00:24:43,029 --> 00:24:40,720

second law came from you know from the

636

00:24:45,909 --> 00:24:43,039

kind of cycle right we expect i try to

637

00:24:48,470 --> 00:24:45,919

expand that in my paper to y why

638

00:24:51,029 --> 00:24:48,480

you know you should not apply here

639

00:24:53,350 --> 00:24:51,039

yeah so uh then you have to give a very

640

00:24:54,710 --> 00:24:53,360

good list so a symmetric is like it's a

641

00:24:56,870 --> 00:24:54,720

necessary condition there are other

642

00:24:57,590 --> 00:24:56,880

conditions also danny also just in his

643

00:24:59,669 --> 00:24:57,600

uh

644

00:25:01,990 --> 00:24:59,679

um talk today right so those like you

645

00:25:04,549 --> 00:25:02,000

know you have to have boundaries all

646

00:25:06,710 --> 00:25:04,559

that that's also also also valid but i

647

00:25:08,549 --> 00:25:06,720

think a symmetrical sentence should be

648

00:25:10,149 --> 00:25:08,559

like the key criteria you know to see

649

00:25:12,950 --> 00:25:10,159

whether they're possible so that's my

650

00:25:14,630 --> 00:25:12,960

point okay don't be afraid to say

651
00:25:16,149 --> 00:25:14,640
the technology does not apply don't be

652
00:25:18,310 --> 00:25:16,159
afraid because there are people don't

653
00:25:20,310 --> 00:25:18,320
understand so if we are not trying to

654
00:25:22,549 --> 00:25:20,320
change the second one second chance

655
00:25:24,870 --> 00:25:22,559
second or just like ideal guess a very

656
00:25:25,909 --> 00:25:24,880
good law beautiful law and apply many

657
00:25:27,269 --> 00:25:25,919
places

658
00:25:29,750 --> 00:25:27,279
and we need that

659
00:25:32,470 --> 00:25:29,760
thank you thank you

660
00:25:33,990 --> 00:25:32,480
you had your hand up uh sure

661
00:25:36,390 --> 00:25:34,000
so the question is

662
00:25:38,310 --> 00:25:36,400
why have there been so many failures

663
00:25:39,750 --> 00:25:38,320

because it's a hard problem

664

00:25:41,590 --> 00:25:39,760

but also because too few people are

665

00:25:45,430 --> 00:25:41,600

working on it and that has a lot to do

666

00:25:47,029 --> 00:25:45,440

with the lack of funding uh shame and

667

00:25:48,789 --> 00:25:47,039

cudgeling by the scientific community

668

00:25:52,310 --> 00:25:48,799

not to look at these

669

00:25:54,310 --> 00:25:52,320

because of fear of failure i think

670

00:25:56,149 --> 00:25:54,320

people who are trying it now are

671

00:25:57,590 --> 00:25:56,159

trying things that many in many cases

672

00:25:59,750 --> 00:25:57,600

could have been tried a long time ago i

673

00:26:00,870 --> 00:25:59,760

i often say that the epicatalysis

674

00:26:02,430 --> 00:26:00,880

experiment

675

00:26:05,190 --> 00:26:02,440

could have been conducted back in the

676

00:26:07,590 --> 00:26:05,200

1870s probably it's it's a 19th century

677

00:26:09,669 --> 00:26:07,600

experiment that had to wait to the 21st

678

00:26:11,350 --> 00:26:09,679

century to be done simply because people

679

00:26:12,789 --> 00:26:11,360

were not looking

680

00:26:15,190 --> 00:26:12,799

or did not look because they didn't

681

00:26:17,430 --> 00:26:15,200

think they'd ever find anything so i

682

00:26:19,110 --> 00:26:17,440

think the and same would be true of

683

00:26:20,070 --> 00:26:19,120

germano's ideas

684

00:26:21,190 --> 00:26:20,080

uh

685

00:26:22,789 --> 00:26:21,200

these are ideas that could have been

686

00:26:26,470 --> 00:26:22,799

explored a century ago

687

00:26:28,390 --> 00:26:26,480

so it's it's a strange thing uh that we

688

00:26:30,470 --> 00:26:28,400

haven't looked at it but i think it has

689

00:26:32,870 --> 00:26:30,480

to do with the community of science

690

00:26:35,669 --> 00:26:32,880

venerating the second law so much that

691

00:26:39,430 --> 00:26:35,679

it's unpopular and unfunded to try to do

692

00:26:41,590 --> 00:26:39,440

so well turning it around why why do why

693

00:26:43,750 --> 00:26:41,600

are there so many erroneous results

694

00:26:45,750 --> 00:26:43,760

people who are believing that they

695

00:26:46,950 --> 00:26:45,760

actually are harvesting energy when

696

00:26:49,830 --> 00:26:46,960

they're not

697

00:26:51,190 --> 00:26:49,840

doing the experiments well or they

698

00:26:52,390 --> 00:26:51,200

haven't thought things through correctly

699

00:26:55,909 --> 00:26:52,400

there are a lot of reasons i mean i'm

700

00:26:58,950 --> 00:26:55,919

not i think uh

701
00:27:01,350 --> 00:26:58,960
failure is part of science and um and if

702
00:27:03,830 --> 00:27:01,360
you're not well educated and motivated

703
00:27:05,830 --> 00:27:03,840
and so on um then yeah you can fail a

704
00:27:07,990 --> 00:27:05,840
lot more often

705
00:27:10,390 --> 00:27:08,000
but i find it surprising that when a

706
00:27:12,549 --> 00:27:10,400
second law challenge comes about almost

707
00:27:14,390 --> 00:27:12,559
nobody repeats it in fact it's

708
00:27:17,510 --> 00:27:14,400
ones in the literature have not been

709
00:27:19,669 --> 00:27:17,520
repeated uh paul's hasn't mine haven't

710
00:27:22,470 --> 00:27:19,679
i'd be surprised garrett if anyone does

711
00:27:24,870 --> 00:27:22,480
yours for a long time either

712
00:27:26,789 --> 00:27:24,880
people avoid doing these repetition

713
00:27:30,149 --> 00:27:26,799

experiments i would i would i would

714

00:27:32,070 --> 00:27:30,159

relish someone trying to to

715

00:27:33,269 --> 00:27:32,080

repeat some of these experiments but

716

00:27:34,870 --> 00:27:33,279

they aren't being done because the

717

00:27:37,350 --> 00:27:34,880

scientific community

718

00:27:39,990 --> 00:27:37,360

dissuades people from doing so

719

00:27:42,710 --> 00:27:40,000

thank you anybody else on the panel

720

00:27:45,669 --> 00:27:42,720

you know i can add to that i i

721

00:27:47,350 --> 00:27:45,679

i've gotten uh you know

722

00:27:49,510 --> 00:27:47,360

not to brag or anything but i've gotten

723

00:27:52,230 --> 00:27:49,520

a lot of funding over the years from the

724

00:27:54,070 --> 00:27:52,240

from from my semiconductor work and my

725

00:27:55,750 --> 00:27:54,080

surface science work

726

00:27:58,310 --> 00:27:55,760

you know in the millions of dollars and

727

00:28:00,149 --> 00:27:58,320

then when i started switching to i know

728

00:28:03,269 --> 00:28:00,159

i like this problem

729

00:28:05,190 --> 00:28:03,279

you know and i switched to um you know

730

00:28:06,549 --> 00:28:05,200

basically the brownian motion of

731

00:28:08,630 --> 00:28:06,559

graphene

732

00:28:11,350 --> 00:28:08,640

uh in some kind of energy

733

00:28:13,430 --> 00:28:11,360

uh harvesting aspect of that

734

00:28:17,909 --> 00:28:13,440

uh i've submitted a bunch of proposals

735

00:28:20,230 --> 00:28:17,919

dod i've talked to darpa i know um david

736

00:28:22,789 --> 00:28:20,240

and um

737

00:28:24,549 --> 00:28:22,799

nsf of course and you know there's

738

00:28:26,870 --> 00:28:24,559

reviewers that will review your thing

739

00:28:29,510 --> 00:28:26,880

and say oh hey this violates the second

740

00:28:32,630 --> 00:28:29,520

law we shouldn't fund it

741

00:28:33,990 --> 00:28:32,640

yes so that happens i'll i'll uh i'll

742

00:28:40,070 --> 00:28:34,000

echo that

743

00:28:44,549 --> 00:28:42,389

i mean i think garrett's question really

744

00:28:46,389 --> 00:28:44,559

was why are there so many

745

00:28:48,710 --> 00:28:46,399

uh garage people

746

00:28:51,510 --> 00:28:48,720

for a better name out there trying all

747

00:28:54,149 --> 00:28:51,520

these things like um like george pointed

748

00:28:55,029 --> 00:28:54,159

out magnetic motors and this and that

749

00:28:58,310 --> 00:28:55,039

and

750

00:29:00,630 --> 00:28:58,320

you know people seem to be really driven

751
00:29:02,710 --> 00:29:00,640
to find something like that

752
00:29:03,830 --> 00:29:02,720
and that's a really interesting question

753
00:29:04,630 --> 00:29:03,840
i think

754
00:29:05,430 --> 00:29:04,640
and

755
00:29:09,990 --> 00:29:05,440
it

756
00:29:11,510 --> 00:29:10,000
something out there

757
00:29:13,750 --> 00:29:11,520
information

758
00:29:15,990 --> 00:29:13,760
and and beg my kind of metaphysical

759
00:29:19,430 --> 00:29:16,000
discussion here something floating in

760
00:29:20,950 --> 00:29:19,440
the universe that seems to be like wow

761
00:29:22,549 --> 00:29:20,960
there's something there's something

762
00:29:24,230 --> 00:29:22,559
there's something and we're all striving

763
00:29:26,470 --> 00:29:24,240

to find that

764

00:29:28,230 --> 00:29:26,480

and you know it's going to land on one

765

00:29:30,630 --> 00:29:28,240

of us but like picasso said well

766

00:29:33,110 --> 00:29:30,640

inspiration needs to find you working

767

00:29:35,430 --> 00:29:33,120

right so when that inspiration comes

768

00:29:37,750 --> 00:29:35,440

it's the people like all you

769

00:29:40,389 --> 00:29:37,760

doing the real good hard work

770

00:29:41,669 --> 00:29:40,399

that is going to solve it so that's my

771

00:29:43,990 --> 00:29:41,679

two cents

772

00:29:47,590 --> 00:29:44,000

i can i can add to that too so so i um

773

00:29:49,990 --> 00:29:47,600

when i published my paper in 2016 it was

774

00:29:52,470 --> 00:29:50,000

i noticed that the statistical

775

00:29:54,630 --> 00:29:52,480

properties of graphene had a heavy tail

776

00:29:56,710 --> 00:29:54,640

like a like a levee flight a

777

00:29:58,389 --> 00:29:56,720

real laurencian distribution which is

778

00:29:59,990 --> 00:29:58,399

highly unusual

779

00:30:02,149 --> 00:30:00,000

and

780

00:30:03,190 --> 00:30:02,159

got very little attention

781

00:30:05,110 --> 00:30:03,200

uh

782

00:30:07,269 --> 00:30:05,120

when we basically

783

00:30:09,190 --> 00:30:07,279

said oh hey you know that actually since

784

00:30:10,950 --> 00:30:09,200

there's a high probability of high

785

00:30:13,190 --> 00:30:10,960

velocity movement

786

00:30:14,549 --> 00:30:13,200

that may lead to an energy harvesting

787

00:30:17,350 --> 00:30:14,559

concept

788

00:30:20,710 --> 00:30:17,360

it resulted in this

789

00:30:22,630 --> 00:30:20,720

huge you know press release uh you know

790

00:30:25,190 --> 00:30:22,640

a big a big pickup in the community you

791

00:30:27,190 --> 00:30:25,200

know this big uh all metric score where

792

00:30:29,750 --> 00:30:27,200

i was getting on the order of a thousand

793

00:30:32,070 --> 00:30:29,760

emails so i there's something in the

794

00:30:34,710 --> 00:30:32,080

public that's interested in

795

00:30:37,909 --> 00:30:34,720

those types of topics versus these other

796

00:30:45,350 --> 00:30:40,630

had a comment his hand

797

00:30:50,710 --> 00:30:47,830

yeah can you guys hear me yeah yes

798

00:30:52,950 --> 00:30:50,720

you know i just uh want to comment on

799

00:30:54,389 --> 00:30:52,960

something launching off of a statement

800

00:30:57,029 --> 00:30:54,399

that i heard charles

801
00:30:59,430 --> 00:30:57,039
say a long time ago uh this is in some

802
00:31:01,430 --> 00:30:59,440
cases this is all about bookkeeping and

803
00:31:03,509 --> 00:31:01,440
are we bookkeeping all the right things

804
00:31:05,590 --> 00:31:03,519
right we're talking about uh the second

805
00:31:07,029 --> 00:31:05,600
law of thermodynamics

806
00:31:09,509 --> 00:31:07,039
so that's kind of like my my launching

807
00:31:12,950 --> 00:31:09,519
point for just a few small statements

808
00:31:15,830 --> 00:31:12,960
i'll make in in 60 seconds or less

809
00:31:17,269 --> 00:31:15,840
you heard me talk in my presentation if

810
00:31:19,590 --> 00:31:17,279
you think about physics as a venn

811
00:31:21,750 --> 00:31:19,600
diagram right there's two circles on the

812
00:31:23,750 --> 00:31:21,760
venn diagram and they touch at a tangent

813
00:31:25,190 --> 00:31:23,760

point one of the circles represents

814

00:31:27,590 --> 00:31:25,200

general relativity the other one

815

00:31:29,110 --> 00:31:27,600

represents quantum mechanics

816

00:31:30,710 --> 00:31:29,120

so we know there's a more

817

00:31:32,389 --> 00:31:30,720

generalized understanding that we have

818

00:31:34,310 --> 00:31:32,399

yet to develop

819

00:31:36,149 --> 00:31:34,320

i mean think about

820

00:31:38,230 --> 00:31:36,159

just from general relativity dark energy

821

00:31:39,350 --> 00:31:38,240

and dark matter 90 some odd percent of

822

00:31:41,430 --> 00:31:39,360

the universe

823

00:31:43,029 --> 00:31:41,440

we technically don't even know what it's

824

00:31:44,389 --> 00:31:43,039

made of right there's a lot of models

825

00:31:48,149 --> 00:31:44,399

that are trying to explain it whether

826

00:31:50,630 --> 00:31:48,159

it's mathematical or a real thing

827

00:31:52,710 --> 00:31:50,640

and then just as a a final point you

828

00:31:54,710 --> 00:31:52,720

know for hundreds of years everyone in

829

00:31:57,110 --> 00:31:54,720

science

830

00:31:58,870 --> 00:31:57,120

worked to create purely analytic models

831

00:32:01,669 --> 00:31:58,880

because we didn't have computers to go

832

00:32:03,590 --> 00:32:01,679

through and model anything so a lot of

833

00:32:05,110 --> 00:32:03,600

uh simplifying assumptions have been

834

00:32:07,190 --> 00:32:05,120

made that baked into a lot of things on

835

00:32:09,669 --> 00:32:07,200

how we look at the universe and how we

836

00:32:10,870 --> 00:32:09,679

model it and how we how we study it uh

837

00:32:12,549 --> 00:32:10,880

and so what computers have kind of

838

00:32:15,269 --> 00:32:12,559

changed that so even in the last 50

839

00:32:17,190 --> 00:32:15,279

years i think we're seeing you know new

840

00:32:19,110 --> 00:32:17,200

tools and opportunities to go explore

841

00:32:21,750 --> 00:32:19,120

things that we we couldn't have explored

842

00:32:23,509 --> 00:32:21,760

just you know a few decades ago

843

00:32:25,110 --> 00:32:23,519

in in our work with

844

00:32:26,950 --> 00:32:25,120

studying the the quantum vacuum with

845

00:32:28,950 --> 00:32:26,960

these little casino cavities that we're

846

00:32:31,590 --> 00:32:28,960

building and we have to use thousands of

847

00:32:33,029 --> 00:32:31,600

cpus to study those so

848

00:32:35,110 --> 00:32:33,039

all that to say

849

00:32:37,029 --> 00:32:35,120

and this closing statement may not be

850

00:32:39,350 --> 00:32:37,039

popular with some here

851
00:32:40,870 --> 00:32:39,360
do we really need to fret too much about

852
00:32:42,389 --> 00:32:40,880
the worry of

853
00:32:43,750 --> 00:32:42,399
toppling the the second law of

854
00:32:45,029 --> 00:32:43,760
thermodynamics right because there's

855
00:32:46,389 --> 00:32:45,039
there's still a lot of things that we

856
00:32:48,070 --> 00:32:46,399
don't know and a lot of things we have

857
00:32:50,470 --> 00:32:48,080
to make sure we understand and and

858
00:32:51,909 --> 00:32:50,480
salute to charles chase's uh tenant

859
00:32:53,430 --> 00:32:51,919
we'll at least call it that the charles

860
00:32:55,269 --> 00:32:53,440
chase tenant are we are we doing all the

861
00:32:59,029 --> 00:32:55,279
proper bookkeeping

862
00:33:00,230 --> 00:32:59,039
so if i i'd like to just respond to that

863
00:33:02,630 --> 00:33:00,240

um

864

00:33:05,029 --> 00:33:02,640

no we certainly don't need to topple the

865

00:33:07,509 --> 00:33:05,039

second law and i i for my

866

00:33:08,310 --> 00:33:07,519

technology i hope that we we're not

867

00:33:12,950 --> 00:33:08,320

but

868

00:33:15,590 --> 00:33:12,960

the problem is uh as as daniel and

869

00:33:17,430 --> 00:33:15,600

in a different way um uh

870

00:33:18,230 --> 00:33:17,440

paul thibodeau says

871

00:33:20,630 --> 00:33:18,240

uh

872

00:33:23,830 --> 00:33:20,640

the world won't recognize us

873

00:33:25,909 --> 00:33:23,840

unless we

874

00:33:29,029 --> 00:33:25,919

if we appear to be violating the second

875

00:33:30,630 --> 00:33:29,039

law and so the second law is tackling us

876

00:33:32,630 --> 00:33:30,640

it's not that we're necessarily needing

877

00:33:33,590 --> 00:33:32,640

to tackle it

878

00:33:38,389 --> 00:33:33,600

that

879

00:33:42,149 --> 00:33:38,399

when looked at from the investors

880

00:33:44,070 --> 00:33:42,159

standpoint uh and i've been uh as i have

881

00:33:46,549 --> 00:33:44,080

mentioned in my discussions been a sort

882

00:33:50,789 --> 00:33:46,559

of go-between uh between uh money

883

00:33:52,950 --> 00:33:50,799

parties and uh new inventions and uh

884

00:33:55,830 --> 00:33:52,960

investors in the commercial world look

885

00:33:58,389 --> 00:33:55,840

at use different metrics to determine

886

00:33:59,830 --> 00:33:58,399

whether something is is uh

887

00:34:01,430 --> 00:33:59,840

efficacious

888

00:34:10,310 --> 00:34:01,440

uh

889

00:34:12,869 --> 00:34:10,320

a um

890

00:34:14,710 --> 00:34:12,879

a clinical view of whether something's

891

00:34:17,909 --> 00:34:14,720

actually possible from looking at a

892

00:34:19,430 --> 00:34:17,919

textbook and saying gosh the second law

893

00:34:22,069 --> 00:34:19,440

says this is not going to work so i'm

894

00:34:24,710 --> 00:34:22,079

not going to invest in it to gee i'm

895

00:34:27,510 --> 00:34:24,720

getting some results someone is making a

896

00:34:30,230 --> 00:34:27,520

bit of progress here um is it worth

897

00:34:32,230 --> 00:34:30,240

continuing that progress either using

898

00:34:35,030 --> 00:34:32,240

darpa grant or

899

00:34:37,430 --> 00:34:35,040

from some a private foundation or an

900

00:34:39,270 --> 00:34:37,440

individual or somebody like that so

901
00:34:40,149 --> 00:34:39,280
you have to use a bit different language

902
00:34:42,629 --> 00:34:40,159
also

903
00:34:44,550 --> 00:34:42,639
uh an investor really doesn't care

904
00:34:48,069 --> 00:34:44,560
whether you're violating first or second

905
00:34:50,230 --> 00:34:48,079
law or any other law for that matter

906
00:34:51,510 --> 00:34:50,240
produce something so that goes along

907
00:34:53,669 --> 00:34:51,520
with what daniel was saying a little

908
00:34:56,470 --> 00:34:53,679
earlier that if if you have a product

909
00:34:58,470 --> 00:34:56,480
that's profitable

910
00:35:00,710 --> 00:34:58,480
i'm sorry gary could i just put a small

911
00:35:02,069 --> 00:35:00,720
sentence on what you said and paul i

912
00:35:03,990 --> 00:35:02,079
agree with you i don't i don't think

913
00:35:05,589 --> 00:35:04,000

neither you nor paul need to go through

914

00:35:06,790 --> 00:35:05,599

and show that you're

915

00:35:08,470 --> 00:35:06,800

violating the second law of

916

00:35:10,310 --> 00:35:08,480

thermodynamics i think it just goes back

917

00:35:11,990 --> 00:35:10,320

to the as you know charles talked about

918

00:35:13,190 --> 00:35:12,000

it's bookkeeping and making sure you

919

00:35:14,950 --> 00:35:13,200

understand

920

00:35:16,470 --> 00:35:14,960

how can you set up some asymmetries

921

00:35:18,230 --> 00:35:16,480

right because at the end of the day

922

00:35:20,470 --> 00:35:18,240

my my coffee cup always tends to get

923

00:35:21,510 --> 00:35:20,480

cold right so

924

00:35:23,910 --> 00:35:21,520

um

925

00:35:25,190 --> 00:35:23,920

just to uh as a counterpoint to what

926
00:35:28,150 --> 00:35:25,200
george said

927
00:35:31,670 --> 00:35:28,160
uh for our technology we've brought it

928
00:35:33,589 --> 00:35:31,680
to several different um

929
00:35:35,349 --> 00:35:33,599
larger groups looking

930
00:35:36,150 --> 00:35:35,359
for collaboration

931
00:35:38,150 --> 00:35:36,160
and

932
00:35:39,349 --> 00:35:38,160
what they usually do is bring in an

933
00:35:41,510 --> 00:35:39,359
academic

934
00:35:42,870 --> 00:35:41,520
to evaluate whether this could possibly

935
00:35:45,510 --> 00:35:42,880
be true

936
00:35:46,710 --> 00:35:45,520
and the academic

937
00:35:49,349 --> 00:35:46,720
you know

938
00:35:50,390 --> 00:35:49,359

those academics

939

00:35:53,270 --> 00:35:50,400

are

940

00:35:56,069 --> 00:35:53,280

tend to be very very conservative

941

00:35:58,470 --> 00:35:56,079

so let me actually twit

942

00:36:01,270 --> 00:35:58,480

modulate the question a little bit

943

00:36:05,990 --> 00:36:01,280

why are we so damn conservative and is

944

00:36:10,230 --> 00:36:08,310

let me any on there are conservative

945

00:36:11,990 --> 00:36:10,240

science necessary for science you know i

946

00:36:14,230 --> 00:36:12,000

actually enjoy actually appreciate

947

00:36:16,550 --> 00:36:14,240

george and martin you know in germany

948

00:36:17,990 --> 00:36:16,560

doing that kind of verification that's

949

00:36:21,270 --> 00:36:18,000

important to maintain a scientific

950

00:36:24,550 --> 00:36:21,280

integrity and test other force ideas

951
00:36:26,230 --> 00:36:24,560
now so the whole thing why this second

952
00:36:27,990 --> 00:36:26,240
law part of that is not accepted

953
00:36:29,430 --> 00:36:28,000
everybody says why this chinese second

954
00:36:31,829 --> 00:36:29,440
or why the second order they can reject

955
00:36:34,069 --> 00:36:31,839
you department energy actually they have

956
00:36:36,710 --> 00:36:34,079
a statement say nsa while second law

957
00:36:38,870 --> 00:36:36,720
they will not fund so this matters you

958
00:36:40,710 --> 00:36:38,880
know right okay

959
00:36:43,030 --> 00:36:40,720
so it is

960
00:36:45,670 --> 00:36:43,040
so this is going to take a long time so

961
00:36:48,069 --> 00:36:45,680
there's a part of history because in the

962
00:36:49,990 --> 00:36:48,079
past you know like in a second i'll come

963
00:36:51,750 --> 00:36:50,000

out nobody understands they're thinking

964

00:36:53,829 --> 00:36:51,760

all the ideas our second law is not

965

00:36:56,230 --> 00:36:53,839

false and they can make perpetual

966

00:36:59,510 --> 00:36:56,240

machines so many of those it's not true

967

00:37:01,750 --> 00:36:59,520

okay it's indeed the false ideas law

968

00:37:03,910 --> 00:37:01,760

and that's getting very bad names

969

00:37:06,069 --> 00:37:03,920

so then uh so that as soon as they say

970

00:37:07,670 --> 00:37:06,079

you know perpetual machine or why the

971

00:37:09,430 --> 00:37:07,680

second law they will say uh-huh you are

972

00:37:11,190 --> 00:37:09,440

faking science

973

00:37:12,630 --> 00:37:11,200

you're no good

974

00:37:14,550 --> 00:37:12,640

that's the only problem so i'm going to

975

00:37:16,150 --> 00:37:14,560

take a long time to come in so now

976

00:37:17,990 --> 00:37:16,160

hopefully we not understand there are

977

00:37:20,390 --> 00:37:18,000

natural processes

978

00:37:22,069 --> 00:37:20,400

they are top b we now clearly identify

979

00:37:23,910 --> 00:37:22,079

you know on equation very clear there's

980

00:37:27,750 --> 00:37:23,920

not no ambiguity there you are on

981

00:37:30,150 --> 00:37:27,760

creating you said explicitly it is there

982

00:37:32,310 --> 00:37:30,160

and so and now you can say the reason

983

00:37:34,630 --> 00:37:32,320

why because second law from ideal gas

984

00:37:38,550 --> 00:37:34,640

law you don't have a symmetry going on

985

00:37:40,069 --> 00:37:38,560

here okay you do so be careful haha

986

00:37:41,910 --> 00:37:40,079

so that's that's why we are saying here

987

00:37:43,829 --> 00:37:41,920

you know we second law is a wonderful

988

00:37:45,510 --> 00:37:43,839

role i would say it's like uh all the

989

00:37:48,630 --> 00:37:45,520

testimony

990

00:37:50,550 --> 00:37:48,640

part b you know that process will be

991

00:37:52,710 --> 00:37:50,560

a new testimony may be writing about so

992

00:37:54,390 --> 00:37:52,720

first uh the first uh you know the the

993

00:37:56,390 --> 00:37:54,400

old testament is variable don't reject

994

00:37:58,230 --> 00:37:56,400

second law don't trouble second law

995

00:38:00,550 --> 00:37:58,240

okay just like i did guess what they're

996

00:38:02,310 --> 00:38:00,560

valid so you say one second of course

997

00:38:03,270 --> 00:38:02,320

everybody gets very upset

998

00:38:04,790 --> 00:38:03,280

right

999

00:38:05,670 --> 00:38:04,800

especially they don't understand first

1000

00:38:07,670 --> 00:38:05,680

of all

1001

00:38:09,510 --> 00:38:07,680

no they cannot fund you okay

1002

00:38:10,310 --> 00:38:09,520

i think we need to communicate better

1003

00:38:11,750 --> 00:38:10,320

our

1004

00:38:14,630 --> 00:38:11,760

strong recommend

1005

00:38:16,550 --> 00:38:14,640

we don't want to say top or anti or

1006

00:38:17,510 --> 00:38:16,560

challenge second law we'll say they are

1007

00:38:19,670 --> 00:38:17,520

two

1008

00:38:21,829 --> 00:38:19,680

you apply easy spaces

1009

00:38:23,910 --> 00:38:21,839

not everywhere sir

1010

00:38:25,589 --> 00:38:23,920

that's a message

1011

00:38:27,190 --> 00:38:25,599

second i was abandoned

1012

00:38:29,510 --> 00:38:27,200

don't topple it

1013

00:38:31,430 --> 00:38:29,520

thank you thank you i'd like to i'd like

1014

00:38:34,390 --> 00:38:31,440

to bring in if i could

1015

00:38:35,670 --> 00:38:34,400

five new topics and they might shed some

1016

00:38:37,510 --> 00:38:35,680

light

1017

00:38:39,030 --> 00:38:37,520

if that's at all possible

1018

00:38:41,109 --> 00:38:39,040

i think historically we have to look at

1019

00:38:44,069 --> 00:38:41,119

babbage don't forget when babbage

1020

00:38:47,190 --> 00:38:44,079

created a computer and how many decades

1021

00:38:48,950 --> 00:38:47,200

went by before is even looked at again

1022

00:38:51,109 --> 00:38:48,960

just think about it you could have had a

1023

00:38:53,190 --> 00:38:51,119

computer had the french government not

1024

00:38:55,430 --> 00:38:53,200

pull back the money the military was

1025

00:38:58,069 --> 00:38:55,440

giving babbage to develop it

1026
00:39:00,790 --> 00:38:58,079
that's one concept the second concept

1027
00:39:02,950 --> 00:39:00,800
is the concept of how simple things are

1028
00:39:05,349 --> 00:39:02,960
once you know how they work look at all

1029
00:39:07,990 --> 00:39:05,359
the people who try to fly look at all

1030
00:39:10,230 --> 00:39:08,000
the attempts of doing a flying machine

1031
00:39:12,470 --> 00:39:10,240
the wright brothers looked at the birds

1032
00:39:14,870 --> 00:39:12,480
learned a lot and now the average kid

1033
00:39:17,030 --> 00:39:14,880
can make a little glider that flies that

1034
00:39:19,430 --> 00:39:17,040
they could have never done years ago and

1035
00:39:21,190 --> 00:39:19,440
you can understand how it works look at

1036
00:39:24,310 --> 00:39:21,200
simple things that that that are

1037
00:39:27,030 --> 00:39:24,320
actually incredibly simple a vacuum tube

1038
00:39:29,270 --> 00:39:27,040

an x-ray tube uh back in the days when i

1039

00:39:31,829 --> 00:39:29,280

first would in the 60s did lasers they

1040

00:39:33,670 --> 00:39:31,839

were just very simple things a

1041

00:39:36,550 --> 00:39:33,680

transistor is even although that gets

1042

00:39:38,710 --> 00:39:36,560

into the micro stuff so many things are

1043

00:39:40,310 --> 00:39:38,720

simple a gyroscope the electric motor

1044

00:39:42,630 --> 00:39:40,320

they try to do motors for years and

1045

00:39:45,270 --> 00:39:42,640

finally one guy got the commutators

1046

00:39:47,750 --> 00:39:45,280

right uh even the internal combustion

1047

00:39:51,030 --> 00:39:47,760

engine it had a couple of tricks uh the

1048

00:39:54,150 --> 00:39:51,040

the the camshaft uh the multiple valve

1049

00:39:55,990 --> 00:39:54,160

cylinders uh on and on and on but it has

1050

00:39:59,109 --> 00:39:56,000

about five six seven trips even a

1051
00:40:01,910 --> 00:39:59,119
bicycle procession and the way the the

1052
00:40:04,550 --> 00:40:01,920
the the can't the can of cantilevered uh

1053
00:40:06,309 --> 00:40:04,560
wheels and so on so these are all things

1054
00:40:08,870 --> 00:40:06,319
once we get it it's simple and we

1055
00:40:10,390 --> 00:40:08,880
understand it but it was this trick and

1056
00:40:12,710 --> 00:40:10,400
then the last thing i wanted to bring up

1057
00:40:15,670 --> 00:40:12,720
i have 10 more but i won't talk is the

1058
00:40:17,910 --> 00:40:15,680
concept that people must die

1059
00:40:21,270 --> 00:40:17,920
in order for them to have progress

1060
00:40:23,510 --> 00:40:21,280
people must die and the reason why they

1061
00:40:25,670 --> 00:40:23,520
must die is i remember in the early days

1062
00:40:26,790 --> 00:40:25,680
i did the first instrumentation on an

1063
00:40:28,950 --> 00:40:26,800

airplane

1064

00:40:30,950 --> 00:40:28,960

and was to just simply do the fuel tank

1065

00:40:32,630 --> 00:40:30,960

it was done by wire and it was to

1066

00:40:35,430 --> 00:40:32,640

measure the fuel in a fuel tank and as

1067

00:40:37,349 --> 00:40:35,440

old guy boeing opposed it and opposed it

1068

00:40:38,710 --> 00:40:37,359

and opposed it we were doing it for

1069

00:40:41,030 --> 00:40:38,720

simmons precision and all of a sudden i

1070

00:40:42,630 --> 00:40:41,040

get the call one day he died so now he

1071

00:40:44,550 --> 00:40:42,640

can move forward and so when you're

1072

00:40:47,030 --> 00:40:44,560

talking about these organizations and

1073

00:40:49,109 --> 00:40:47,040

these peer review boards they consist of

1074

00:40:50,870 --> 00:40:49,119

people and these people are dead in

1075

00:40:52,790 --> 00:40:50,880

their ways and they're super opposed

1076
00:40:54,630 --> 00:40:52,800
things and they make things not happen

1077
00:40:57,510 --> 00:40:54,640
and they're powerful people they've got

1078
00:40:59,030 --> 00:40:57,520
to die in fact who said this was fun

1079
00:41:01,430 --> 00:40:59,040
you're not going to get new physics

1080
00:41:03,750 --> 00:41:01,440
until enough people die

1081
00:41:06,309 --> 00:41:03,760
yes i think garrett does that answer

1082
00:41:09,510 --> 00:41:06,319
your question as to why you guys are all

1083
00:41:11,430 --> 00:41:10,390
yeah

1084
00:41:13,510 --> 00:41:11,440
right

1085
00:41:16,309 --> 00:41:13,520
i mean that seems like a good social

1086
00:41:18,710 --> 00:41:16,319
factor in the whole conservative nature

1087
00:41:20,550 --> 00:41:18,720
of academia which i

1088
00:41:22,309 --> 00:41:20,560

you know you guys got to be right though

1089

00:41:25,990 --> 00:41:22,319

i mean if you're wrong about something

1090

00:41:27,109 --> 00:41:26,000

man you get run over the coals

1091

00:41:29,430 --> 00:41:27,119

yeah

1092

00:41:31,589 --> 00:41:29,440

can we freshen the way that we speak i

1093

00:41:33,829 --> 00:41:31,599

mean sometimes even just rearranging the

1094

00:41:35,670 --> 00:41:33,839

way that we discuss items and frame our

1095

00:41:38,309 --> 00:41:35,680

questions can make a huge difference in

1096

00:41:40,470 --> 00:41:38,319

solving and i find this to be true you

1097

00:41:42,550 --> 00:41:40,480

know i hear the same things repeated

1098

00:41:45,030 --> 00:41:42,560

again and again and again i've listened

1099

00:41:46,950 --> 00:41:45,040

to all of the sessions these five days

1100

00:41:49,430 --> 00:41:46,960

and people speak about light in the same

1101
00:41:52,230 --> 00:41:49,440
way they they quote this law this rule

1102
00:41:54,710 --> 00:41:52,240
that law and i hear you all phrasing

1103
00:41:57,030 --> 00:41:54,720
things the same way every time you say

1104
00:41:58,230 --> 00:41:57,040
it and i just challenge you

1105
00:42:00,069 --> 00:41:58,240
to

1106
00:42:02,230 --> 00:42:00,079
think about the way that you're speaking

1107
00:42:04,710 --> 00:42:02,240
about fundamental energy and light and

1108
00:42:06,790 --> 00:42:04,720
perhaps reframe some of your questions

1109
00:42:09,349 --> 00:42:06,800
um i encourage you to watch all of the

1110
00:42:10,230 --> 00:42:09,359
talks over these past five days catch up

1111
00:42:12,390 --> 00:42:10,240
with

1112
00:42:14,470 --> 00:42:12,400
some truly fantastic

1113
00:42:16,710 --> 00:42:14,480

really good ideas and charles recorded

1114

00:42:19,430 --> 00:42:16,720

an intro yesterday that's at the top of

1115

00:42:20,870 --> 00:42:19,440

our uh blog page and i would read that i

1116

00:42:21,750 --> 00:42:20,880

would listen to that too that was a good

1117

00:42:26,630 --> 00:42:21,760

one

1118

00:42:29,190 --> 00:42:26,640

i want to get that in we ask are there

1119

00:42:32,390 --> 00:42:29,200

people who haven't spoken yet this

1120

00:42:34,550 --> 00:42:32,400

afternoon who have some comments i think

1121

00:42:55,430 --> 00:42:34,560

some people may be quiet but have

1122

00:43:00,230 --> 00:42:56,829

are you trying to say something you're

1123

00:43:03,270 --> 00:43:00,240

unmute you're unreal you're on mute i

1124

00:43:07,589 --> 00:43:05,990

okay shall i speak yes

1125

00:43:09,990 --> 00:43:07,599

okay uh no

1126

00:43:13,430 --> 00:43:10,000

actually no sorry i'm trying to get jack

1127

00:43:15,109 --> 00:43:13,440

sarfatti to to speak but

1128

00:43:16,790 --> 00:43:15,119

hello

1129

00:43:19,190 --> 00:43:16,800

jack the mute buttons on the bottom left

1130

00:43:22,230 --> 00:43:19,200

of the bezel

1131

00:43:24,309 --> 00:43:22,240

no it's not working okay garrett

1132

00:43:26,309 --> 00:43:24,319

uh

1133

00:43:31,030 --> 00:43:26,319

yes is there somebody else who hasn't

1134

00:43:36,230 --> 00:43:33,430

bob ruik i'm not a part of your panel i

1135

00:43:37,990 --> 00:43:36,240

have not spoke please

1136

00:43:40,470 --> 00:43:38,000

can i share just a couple of

1137

00:43:42,550 --> 00:43:40,480

observations or questions i'll go ahead

1138

00:43:43,829 --> 00:43:42,560

bob

1139

00:43:45,430 --> 00:43:43,839

um

1140

00:43:49,670 --> 00:43:45,440

i have followed

1141

00:43:51,510 --> 00:43:49,680

this work since 2006 when i went to a

1142

00:43:53,430 --> 00:43:51,520

symposium that

1143

00:43:56,710 --> 00:43:53,440

dr sheehan had out

1144

00:44:01,990 --> 00:43:59,030

my motivation has been different it's

1145

00:44:03,589 --> 00:44:02,000

been to see where physics needs to be

1146

00:44:04,950 --> 00:44:03,599

extended to

1147

00:44:07,109 --> 00:44:04,960

take into

1148

00:44:07,910 --> 00:44:07,119

the support

1149

00:44:10,630 --> 00:44:07,920

uh

1150

00:44:12,069 --> 00:44:10,640

paranormal and and non-locality kind of

1151
00:44:12,790 --> 00:44:12,079
situations

1152
00:44:16,230 --> 00:44:12,800
so

1153
00:44:18,870 --> 00:44:16,240
uh if measurements of energy violating

1154
00:44:20,309 --> 00:44:18,880
the second law all use language and

1155
00:44:24,630 --> 00:44:20,319
terminology

1156
00:44:29,510 --> 00:44:28,230
if system is not closed and for instance

1157
00:44:32,550 --> 00:44:29,520
there is a

1158
00:44:35,990 --> 00:44:32,560
zero point field existing

1159
00:44:37,349 --> 00:44:36,000
then there's no surprise

1160
00:44:41,270 --> 00:44:37,359
there is

1161
00:44:44,390 --> 00:44:41,280
violation of this second law

1162
00:44:47,589 --> 00:44:44,400
the issue to me is one of

1163
00:44:49,750 --> 00:44:47,599

uh is time uh really

1164

00:44:51,750 --> 00:44:49,760
as we have assumed it with this

1165

00:44:55,030 --> 00:44:51,760
simultaneous

1166

00:44:55,990 --> 00:44:55,040
energy and photon exchange in

1167

00:44:58,150 --> 00:44:56,000
in

1168

00:44:59,109 --> 00:44:58,160
causality

1169

00:45:00,710 --> 00:44:59,119
uh

1170

00:45:01,589 --> 00:45:00,720
or

1171

00:45:04,710 --> 00:45:01,599
is

1172

00:45:07,510 --> 00:45:04,720
time really a duration

1173

00:45:09,190 --> 00:45:07,520
and at the plank limits of 10 to the

1174

00:45:11,510 --> 00:45:09,200
minus 44

1175

00:45:13,589 --> 00:45:11,520
we aren't even close

1176

00:45:16,710 --> 00:45:13,599

to examining

1177

00:45:17,510 --> 00:45:16,720

what the limit is in our own model

1178

00:45:19,270 --> 00:45:17,520

which

1179

00:45:21,910 --> 00:45:19,280

right now the best measurements i've

1180

00:45:24,069 --> 00:45:21,920

been informed of are about 10 to the

1181

00:45:25,589 --> 00:45:24,079

minus 23.

1182

00:45:26,630 --> 00:45:25,599

and everything that's been discussed

1183

00:45:28,390 --> 00:45:26,640

today

1184

00:45:32,630 --> 00:45:28,400

has been

1185

00:45:37,670 --> 00:45:35,670

so did you have a slacks up jack's ready

1186

00:45:40,230 --> 00:45:37,680

to go okay yeah

1187

00:45:42,710 --> 00:45:40,240

so uh uh a couple of things

1188

00:45:45,910 --> 00:45:42,720

uh has anybody considered

1189

00:45:48,550 --> 00:45:45,920

uh can you hear me yep

1190

00:45:51,030 --> 00:45:48,560

what happens when you uh make a carnot

1191

00:45:53,190 --> 00:45:51,040

engine with a negative spin temperature

1192

00:45:57,030 --> 00:45:53,200

coupled to a classical positive

1193

00:46:01,349 --> 00:45:57,040

temperature what's the efficiency

1194

00:46:03,829 --> 00:46:01,359

you tell us check that one out

1195

00:46:04,870 --> 00:46:03,839

you have 100 it turns out that heat is

1196

00:46:07,190 --> 00:46:04,880

sucked

1197

00:46:09,349 --> 00:46:07,200

according to the second law according to

1198

00:46:10,470 --> 00:46:09,359

the classical second law the carnot

1199

00:46:12,950 --> 00:46:10,480

equation

1200

00:46:15,109 --> 00:46:12,960

uh heat is sucked out of both reservoirs

1201

00:46:16,790 --> 00:46:15,119

and converted entirely into work it's

1202

00:46:18,630 --> 00:46:16,800

not a violation the second one is the

1203

00:46:20,470 --> 00:46:18,640

second law

1204

00:46:22,470 --> 00:46:20,480

but with negative negative you know

1205

00:46:24,230 --> 00:46:22,480

quantum spin temperatures and there's a

1206

00:46:26,829 --> 00:46:24,240

quantum effect

1207

00:46:30,870 --> 00:46:28,390

but

1208

00:46:33,109 --> 00:46:30,880

you thought about that

1209

00:46:34,230 --> 00:46:33,119

how do you build one yeah how do you set

1210

00:46:39,109 --> 00:46:34,240

up

1211

00:46:40,069 --> 00:46:39,119

the negative spin temperature that is

1212

00:46:43,430 --> 00:46:40,079

separate

1213

00:46:45,430 --> 00:46:43,440

uh from a positive uh well

1214

00:46:47,270 --> 00:46:45,440

well i don't yeah that's a good that

1215

00:46:49,190 --> 00:46:47,280

that's a good question well the second

1216

00:46:52,150 --> 00:46:49,200

law is an experimental statement i'm

1217

00:46:54,230 --> 00:46:52,160

just going i'm just going over the uh

1218

00:46:55,109 --> 00:46:54,240

what the mathematics says i mean i'm not

1219

00:46:56,790 --> 00:46:55,119

you know

1220

00:46:59,349 --> 00:46:56,800

figure out an expression that's why it

1221

00:47:01,270 --> 00:46:59,359

should be impossible but is it some law

1222

00:47:03,589 --> 00:47:01,280

a nature thing you cannot

1223

00:47:05,190 --> 00:47:03,599

um you know the spin to be in couple of

1224

00:47:06,309 --> 00:47:05,200

spin degrees of freedom to the last

1225

00:47:07,910 --> 00:47:06,319

degrees of freedom so i think it's

1226

00:47:10,230 --> 00:47:07,920

called spin orbit point i think you

1227

00:47:12,790 --> 00:47:10,240

should be able to do that yeah but but

1228

00:47:15,270 --> 00:47:12,800

but spin spin orbit coupling and and uh

1229

00:47:16,470 --> 00:47:15,280

spin temperature i like into electron

1230

00:47:17,430 --> 00:47:16,480

temperature which

1231

00:47:20,470 --> 00:47:17,440

is

1232

00:47:22,390 --> 00:47:20,480

uh a different class of thermodynamic to

1233

00:47:23,430 --> 00:47:22,400

things i don't see what i know

1234

00:47:24,710 --> 00:47:23,440

i don't say

1235

00:47:26,309 --> 00:47:24,720

i mean you know i have faith in

1236

00:47:28,870 --> 00:47:26,319

mathematics i'm a theoretical physicist

1237

00:47:30,870 --> 00:47:28,880

i see the equation says

1238

00:47:32,710 --> 00:47:30,880

i mean it's experimental issue i mean i

1239

00:47:34,630 --> 00:47:32,720

don't i don't see why it should be a

1240

00:47:37,109 --> 00:47:34,640

fundamental law that you cannot

1241

00:47:40,069 --> 00:47:37,119

uh run a carnot engine between a

1242

00:47:41,910 --> 00:47:40,079

negative and a positive temperature

1243

00:47:43,990 --> 00:47:41,920

so i think the answer you can't but it's

1244

00:47:46,230 --> 00:47:44,000

not obvious you can't you can't so i

1245

00:47:47,910 --> 00:47:46,240

think the answer here is that really

1246

00:47:52,150 --> 00:47:47,920

theorists ought to be building things

1247

00:47:58,549 --> 00:47:55,990

okay there is a book there's a zamanski

1248

00:48:01,589 --> 00:47:58,559

it's a dover there's an old book by

1249

00:48:03,670 --> 00:48:01,599

zamanski you know sears and zamanski

1250

00:48:04,549 --> 00:48:03,680

and he talks about

1251

00:48:06,230 --> 00:48:04,559

uh

1252

00:48:07,750 --> 00:48:06,240

carnal engine between two negative

1253

00:48:09,349 --> 00:48:07,760

temperatures

1254

00:48:10,309 --> 00:48:09,359

but he doesn't talk about positive and

1255

00:48:13,270 --> 00:48:10,319

negative

1256

00:48:14,710 --> 00:48:13,280

so it's in schizoid standard textbook

1257

00:48:16,549 --> 00:48:14,720

from years ago

1258

00:48:19,190 --> 00:48:16,559

now that uh there's a kind of engine

1259

00:48:21,670 --> 00:48:19,200

with between two negative temperatures

1260

00:48:23,829 --> 00:48:21,680

so i don't see any fundamental uh you

1261

00:48:26,470 --> 00:48:23,839

know just

1262

00:48:28,549 --> 00:48:26,480

not okay the other thing is uh about uh

1263

00:48:30,630 --> 00:48:28,559

the other change topic

1264

00:48:33,430 --> 00:48:30,640

uh about the real and virtual particles

1265

00:48:35,190 --> 00:48:33,440

that wasn't garrett was asking uh you

1266

00:48:37,190 --> 00:48:35,200

know is that he with the co-tangent

1267

00:48:39,109 --> 00:48:37,200

formula are they unified

1268

00:48:40,710 --> 00:48:39,119

and uh yes

1269

00:48:42,710 --> 00:48:40,720

the uh hawking

1270

00:48:44,150 --> 00:48:42,720

evaporation of black holes and the

1271

00:48:45,750 --> 00:48:44,160

unrule

1272

00:48:48,710 --> 00:48:45,760

the distinction between virtual

1273

00:48:50,150 --> 00:48:48,720

particles and real particles is not

1274

00:48:52,950 --> 00:48:50,160

invariant

1275

00:48:55,829 --> 00:48:52,960

under um inertial non-inertial frame

1276
00:48:57,109 --> 00:48:55,839
transformation general relativity um in

1277
00:48:58,390 --> 00:48:57,119
other words if you have a particle

1278
00:49:00,710 --> 00:48:58,400
detector

1279
00:49:02,630 --> 00:49:00,720
that has a proper acceleration you know

1280
00:49:04,470 --> 00:49:02,640
it's a it's really accelerating relative

1281
00:49:06,309 --> 00:49:04,480
to the gravitational

1282
00:49:08,309 --> 00:49:06,319
um metric field

1283
00:49:10,870 --> 00:49:08,319
uh it sees uh

1284
00:49:11,750 --> 00:49:10,880
these black body radiation that depends

1285
00:49:13,109 --> 00:49:11,760
upon

1286
00:49:15,750 --> 00:49:13,119
its um

1287
00:49:18,390 --> 00:49:15,760
its proper acceleration you know off its

1288
00:49:21,510 --> 00:49:18,400

possessive path so uh

1289

00:49:24,549 --> 00:49:21,520

so that means that the inertial observer

1290

00:49:26,870 --> 00:49:24,559

will see zero point photons but the guy

1291

00:49:29,270 --> 00:49:26,880

next to him who's accelerating

1292

00:49:31,430 --> 00:49:29,280

will see some of these virtual photons

1293

00:49:33,190 --> 00:49:31,440

become real photons i guess because you

1294

00:49:35,109 --> 00:49:33,200

know there's an external force on the

1295

00:49:38,150 --> 00:49:35,119

detectors doing work so it's providing

1296

00:49:41,430 --> 00:49:38,160

the energy to to upgrade the uh

1297

00:49:43,670 --> 00:49:41,440

the virtual photons into real photons

1298

00:49:45,589 --> 00:49:43,680

so um so the distinction i mean the

1299

00:49:47,750 --> 00:49:45,599

general the mess the distinction between

1300

00:49:49,430 --> 00:49:47,760

real and virtual particles is not an

1301

00:49:52,390 --> 00:49:49,440

absolute distinction

1302

00:49:54,549 --> 00:49:52,400

it's contingent on acceleration of the

1303

00:49:57,910 --> 00:49:54,559

detector so i think that's

1304

00:49:59,430 --> 00:49:57,920

relevant to what garrett was uh asking

1305

00:50:00,950 --> 00:49:59,440

yes thank you

1306

00:50:01,750 --> 00:50:00,960

um

1307

00:50:03,190 --> 00:50:01,760

gene

1308

00:50:06,150 --> 00:50:03,200

kidman had

1309

00:50:09,430 --> 00:50:06,160

uh you you had your hand up yes um

1310

00:50:11,190 --> 00:50:09,440

so i'm a chemical engineer and uh

1311

00:50:12,390 --> 00:50:11,200

i've been interested in energy for some

1312

00:50:15,990 --> 00:50:12,400

time i did an

1313

00:50:17,190 --> 00:50:16,000

analysis on a a reaction that really

1314

00:50:19,510 --> 00:50:17,200

brings

1315

00:50:20,309 --> 00:50:19,520

an interesting thought about entropy

1316

00:50:21,270 --> 00:50:20,319

um

1317

00:50:22,710 --> 00:50:21,280

in this

1318

00:50:27,670 --> 00:50:22,720

reaction

1319

00:50:28,870 --> 00:50:27,680

uh done in what he calls intermediate

1320

00:50:30,470 --> 00:50:28,880

fusion

1321

00:50:32,950 --> 00:50:30,480

and i i

1322

00:50:34,710 --> 00:50:32,960

was able to find with a high degree of

1323

00:50:36,630 --> 00:50:34,720

accuracy there was a trip that there was

1324

00:50:38,150 --> 00:50:36,640

a tremendous amount

1325

00:50:39,670 --> 00:50:38,160

of uh

1326

00:50:42,549 --> 00:50:39,680

transmutation

1327

00:50:44,150 --> 00:50:42,559

and i was able actually from the from

1328

00:50:46,230 --> 00:50:44,160

the mass balance

1329

00:50:48,710 --> 00:50:46,240

uh able to show

1330

00:50:50,549 --> 00:50:48,720

a chemical reaction equation it was that

1331

00:50:53,910 --> 00:50:50,559

it was that precise

1332

00:50:56,549 --> 00:50:53,920

but the weird thing about it uh was that

1333

00:50:59,270 --> 00:50:56,559

about four ten thousandths of the energy

1334

00:51:00,710 --> 00:50:59,280

that would be predicted by that mass

1335

00:51:03,430 --> 00:51:00,720

uh loss

1336

00:51:05,510 --> 00:51:03,440

uh shows up as heat and the rest well

1337

00:51:07,750 --> 00:51:05,520

who knows what happens to it

1338

00:51:08,870 --> 00:51:07,760

which brings out the crazy question

1339

00:51:10,630 --> 00:51:08,880

simply that

1340

00:51:13,430 --> 00:51:10,640

the possibility

1341

00:51:14,870 --> 00:51:13,440

that there is something that composes

1342

00:51:17,270 --> 00:51:14,880

entropy

1343

00:51:20,230 --> 00:51:17,280

that has nothing to do with this concept

1344

00:51:23,190 --> 00:51:20,240

of order and disorder but is actually

1345

00:51:34,230 --> 00:51:23,200

perhaps some kind of mass or energy

1346

00:51:36,790 --> 00:51:35,109

um

1347

00:51:40,230 --> 00:51:36,800

daniel did you have a

1348

00:51:43,030 --> 00:51:41,109

um

1349

00:51:45,829 --> 00:51:43,040

so there would be a there would be a

1350

00:51:48,309 --> 00:51:45,839

very nice cartilage gene to that because

1351

00:51:51,190 --> 00:51:48,319

entropy can be either the physics view

1352

00:51:53,270 --> 00:51:51,200

of entropy or it can be the shannon

1353

00:51:54,950 --> 00:51:53,280

informational view of entropy and the

1354

00:51:56,950 --> 00:51:54,960

twain should never meet

1355

00:51:58,870 --> 00:51:56,960

uh i have a story i could tell you that

1356

00:52:00,870 --> 00:51:58,880

shannon was dying what he told me why he

1357

00:52:02,790 --> 00:52:00,880

never connected the two but we don't

1358

00:52:05,589 --> 00:52:02,800

have the time for that but at any rate

1359

00:52:09,270 --> 00:52:05,599

what you're alluding to is uh is that

1360

00:52:12,230 --> 00:52:09,280

the uh entropy uh takes on a form

1361

00:52:14,309 --> 00:52:12,240

right now of information disorder and it

1362

00:52:17,510 --> 00:52:14,319

might have a correlate into a physical

1363

00:52:22,309 --> 00:52:20,150

yeah yes that's true in fact uh

1364

00:52:24,710 --> 00:52:22,319

there have been measurements made by the

1365

00:52:27,430 --> 00:52:24,720

the russians of something they call uh

1366

00:52:30,549 --> 00:52:27,440

strange radiation where they capture

1367

00:52:33,910 --> 00:52:30,559

this radiation that they can walk

1368

00:52:35,829 --> 00:52:33,920

as far as light is concerned and it it

1369

00:52:36,950 --> 00:52:35,839

and it gets trapped because of its

1370

00:52:38,150 --> 00:52:36,960

momentum

1371

00:52:41,190 --> 00:52:38,160

in water

1372

00:52:43,349 --> 00:52:41,200

and then can be forced back out of the

1373

00:52:45,589 --> 00:52:43,359

water by a laser

1374

00:52:48,230 --> 00:52:45,599

and it creates some kind of uh

1375

00:52:50,230 --> 00:52:48,240

interaction with an emulsion or a film

1376

00:52:51,910 --> 00:52:50,240

and so they they've got these

1377

00:52:53,990 --> 00:52:51,920

strange radiation

1378

00:52:56,230 --> 00:52:54,000

tracks that's what they what they call

1379

00:52:58,230 --> 00:52:56,240

it and beyond that who knows what the

1380

00:53:00,470 --> 00:52:58,240

devil it is but yeah i think there's

1381

00:53:01,510 --> 00:53:00,480

some there's some interesting

1382

00:53:02,950 --> 00:53:01,520

uh

1383

00:53:05,109 --> 00:53:02,960

data out there suggesting the

1384

00:53:06,309 --> 00:53:05,119

possibility that there is some other

1385

00:53:08,549 --> 00:53:06,319

form

1386

00:53:10,470 --> 00:53:08,559

of

1387

00:53:12,470 --> 00:53:10,480

mass or energy

1388

00:53:15,270 --> 00:53:12,480

than what we

1389

00:53:17,990 --> 00:53:15,280

standard models or through standard

1390

00:53:20,390 --> 00:53:18,000

radiation now even even a lot of the

1391

00:53:22,870 --> 00:53:20,400

lenr stuff they get into talking about

1392

00:53:24,230 --> 00:53:22,880

there's a guy called room

1393

00:53:27,190 --> 00:53:24,240

who went through and analyzed the

1394

00:53:30,390 --> 00:53:27,200

radiation off of it and was not able to

1395

00:53:32,870 --> 00:53:30,400

classify it into any one of the

1396

00:53:35,349 --> 00:53:32,880

normal classes for the radiation off of

1397

00:53:39,510 --> 00:53:35,359

those lenore reactions

1398

00:53:42,069 --> 00:53:39,520

so i thank you um i think you're

1399

00:53:43,349 --> 00:53:42,079

pointing to more questions than answers

1400

00:53:44,230 --> 00:53:43,359

which i think is

1401
00:53:45,270 --> 00:53:44,240
what

1402
00:53:47,510 --> 00:53:45,280
our

1403
00:53:49,030 --> 00:53:47,520
whole discussion today did

1404
00:53:50,630 --> 00:53:49,040
and i've got a

1405
00:53:53,270 --> 00:53:50,640
strong feeling this is not going to be

1406
00:53:55,109 --> 00:53:53,280
the last time we convened to discuss

1407
00:53:56,309 --> 00:53:55,119
these

1408
00:53:58,150 --> 00:53:56,319
about one last issues

1409
00:54:03,990 --> 00:53:58,160
garrett

1410
00:54:07,589 --> 00:54:06,390
generation 4

1411
00:54:12,230 --> 00:54:07,599
of what

1412
00:54:14,950 --> 00:54:12,240
second law devices i see okay uh let's

1413
00:54:16,150 --> 00:54:14,960

next time we meet we'll have it

1414

00:54:18,150 --> 00:54:16,160

okay

1415

00:54:21,510 --> 00:54:18,160

you you and i will be in production with

1416

00:54:25,510 --> 00:54:23,910

so anyway i'd like to i it's time i

1417

00:54:27,349 --> 00:54:25,520

don't want to

1418

00:54:28,630 --> 00:54:27,359

know there's a lot more to to say but i

1419

00:54:31,349 --> 00:54:28,640

think we better

1420

00:54:33,030 --> 00:54:31,359

uh call it at this point all right uh

1421

00:54:36,549 --> 00:54:33,040

thank you very much

1422

00:54:37,670 --> 00:54:36,559

for your participation and interest

1423

00:54:38,630 --> 00:54:37,680

um

1424

00:54:41,750 --> 00:54:38,640

there's

1425

00:54:43,750 --> 00:54:41,760

as i said much more to to pursue which i

1426

00:54:45,270 --> 00:54:43,760

i'm sure we will do in future

1427

00:54:47,910 --> 00:54:45,280

conversations

1428

00:54:49,030 --> 00:54:47,920

uh charles do you have uh any final

1429

00:54:50,630 --> 00:54:49,040

comments

1430

00:54:53,829 --> 00:54:50,640

yeah thank you garrett and you know

1431

00:54:56,150 --> 00:54:53,839

really appreciate you uh joining us

1432

00:54:58,230 --> 00:54:56,160

this year and the society for scientific

1433

00:54:59,670 --> 00:54:58,240

exploration and it's been a wonderful

1434

00:55:02,549 --> 00:54:59,680

set of talks

1435

00:55:03,750 --> 00:55:02,559

on this last day of our conference and

1436

00:55:05,750 --> 00:55:03,760

um

1437

00:55:07,030 --> 00:55:05,760

you know as long as we've had 29 talks

1438

00:55:09,430 --> 00:55:07,040

throughout the

1439

00:55:13,109 --> 00:55:09,440

five days and near as i can tell about

1440

00:55:15,109 --> 00:55:13,119

150 maybe 175 different participants so

1441

00:55:18,069 --> 00:55:15,119

although you know it's unfortunate we

1442

00:55:20,710 --> 00:55:18,079

couldn't meet in person at mit where you

1443

00:55:23,349 --> 00:55:20,720

have those really strong heart-to-heart

1444

00:55:25,589 --> 00:55:23,359

conversations um i think there's other

1445

00:55:28,390 --> 00:55:25,599

benefits to the zoo meeting where more

1446

00:55:29,910 --> 00:55:28,400

people can participate and uh

1447

00:55:31,589 --> 00:55:29,920

and that as well

1448

00:55:33,829 --> 00:55:31,599

and i just you know i think our

1449

00:55:35,910 --> 00:55:33,839

questions are key right what are the

1450

00:55:39,430 --> 00:55:35,920

questions that we're asking

1451
00:55:41,270 --> 00:55:39,440
and um someone had a quote that you know

1452
00:55:43,349 --> 00:55:41,280
once once

1453
00:55:45,589 --> 00:55:43,359
you ask the right question

1454
00:55:47,670 --> 00:55:45,599
the answer is obvious

1455
00:55:49,510 --> 00:55:47,680
and i wish i remember who said that it

1456
00:55:51,910 --> 00:55:49,520
was someone who had taught him that and

1457
00:55:53,190 --> 00:55:51,920
i think we could look at reframing

1458
00:55:55,430 --> 00:55:53,200
what we're doing

1459
00:55:58,870 --> 00:55:55,440
by carefully considering the words we

1460
00:56:00,870 --> 00:55:58,880
use you know how do the words we use

1461
00:56:02,549 --> 00:56:00,880
limit our conceptions

1462
00:56:04,230 --> 00:56:02,559
because words are reductionists right

1463
00:56:06,309 --> 00:56:04,240

the thoughts in our head

1464

00:56:08,789 --> 00:56:06,319

we speak some words they don't really

1465

00:56:11,270 --> 00:56:08,799

reflect the thoughts in our head and we

1466

00:56:12,789 --> 00:56:11,280

use words you know kind of willy-nilly

1467

00:56:15,750 --> 00:56:12,799

and they're baked in

1468

00:56:17,910 --> 00:56:15,760

and it bakes in an idea so you know i

1469

00:56:20,549 --> 00:56:17,920

think we should really consider the

1470

00:56:23,190 --> 00:56:20,559

words we're using and we need to be bold

1471

00:56:25,670 --> 00:56:23,200

you know i go back to jim jeske's uh

1472

00:56:28,789 --> 00:56:25,680

dragon king events

1473

00:56:30,950 --> 00:56:28,799

uh and situation that could be happening

1474

00:56:33,829 --> 00:56:30,960

we really need to be bold it's not a

1475

00:56:36,069 --> 00:56:33,839

time to be conservative and many of us

1476
00:56:36,870 --> 00:56:36,079
are at you know the age of reason right

1477
00:56:41,030 --> 00:56:36,880
where

1478
00:56:43,349 --> 00:56:41,040
it's time to just really do what our

1479
00:56:44,470 --> 00:56:43,359
heart says and you know

1480
00:56:46,470 --> 00:56:44,480
uh

1481
00:56:47,829 --> 00:56:46,480
and all the other sort of things be

1482
00:56:48,789 --> 00:56:47,839
damned

1483
00:56:49,829 --> 00:56:48,799
um

1484
00:56:51,750 --> 00:56:49,839
and

1485
00:56:52,950 --> 00:56:51,760
you know so i would encourage people to

1486
00:56:55,589 --> 00:56:52,960
you know who didn't have a chance to

1487
00:56:56,789 --> 00:56:55,599
take a look at all the videos or online

1488
00:56:58,789 --> 00:56:56,799

and uh

1489

00:57:00,309 --> 00:56:58,799

you know we i just wanted to list you

1490

00:57:01,430 --> 00:57:00,319

know we've talked about the forcing

1491

00:57:03,750 --> 00:57:01,440

function

1492

00:57:05,910 --> 00:57:03,760

we talked about light and em we talked

1493

00:57:07,670 --> 00:57:05,920

about vacuum fluctuations

1494

00:57:09,349 --> 00:57:07,680

we covered some new theories from

1495

00:57:11,430 --> 00:57:09,359

different viewpoints

1496

00:57:12,630 --> 00:57:11,440

uh we talked about testing of some of

1497

00:57:14,549 --> 00:57:12,640

these

1498

00:57:16,710 --> 00:57:14,559

unusual devices

1499

00:57:19,430 --> 00:57:16,720

and today we talked about second law

1500

00:57:21,390 --> 00:57:19,440

violation so i i always believe that

1501
00:57:24,309 --> 00:57:21,400
it's through this

1502
00:57:25,829 --> 00:57:24,319
multi-disciplinary multi-viewpoint

1503
00:57:27,750 --> 00:57:25,839
sort of thing

1504
00:57:30,390 --> 00:57:27,760
that maybe we can come up with new

1505
00:57:33,750 --> 00:57:30,400
conceptions new ideas that we can then

1506
00:57:35,829 --> 00:57:33,760
go off and and make something happen so

1507
00:57:38,470 --> 00:57:35,839
you know finally i just thank everybody

1508
00:57:41,750 --> 00:57:38,480
for participating and everyone who gave

1509
00:57:44,789 --> 00:57:41,760
talks and uh you know i just really

1510
00:57:46,870 --> 00:57:44,799
loved the open discussions and

1511
00:57:48,870 --> 00:57:46,880
and everyone seeking things out there

1512
00:57:49,990 --> 00:57:48,880
you know thank you very much appreciate

1513
00:57:51,910 --> 00:57:50,000

it

1514

00:57:53,829 --> 00:57:51,920

thank you for organizing

1515

00:57:56,150 --> 00:57:53,839

and thank everybody for being bold and

1516

00:57:58,789 --> 00:57:56,160

sharing yeah thank you

1517

00:57:58,799 --> 00:58:03,349

thank you charles and barrett

1518

00:58:06,230 --> 00:58:04,870

take care everyone

1519

00:58:07,109 --> 00:58:06,240

yeah thank you

1520

00:58:11,670 --> 00:58:07,119

goodbye

1521

00:58:15,109 --> 00:58:13,510

thanks charles for everything yeah it

1522

00:58:18,950 --> 00:58:15,119

was amazing

1523

00:58:23,829 --> 00:58:22,230

thanks thanks

1524

00:58:26,710 --> 00:58:23,839

i look forward to seeing you all in

1525

00:58:27,990 --> 00:58:26,720

person next year be well yes

1526

00:58:32,470 --> 00:58:28,000

yes

1527

00:58:37,109 --> 00:58:34,390

yeah charlie i think to move on from

1528

00:58:39,109 --> 00:58:37,119

here i think you know education is most

1529

00:58:40,470 --> 00:58:39,119

important i think you know publish some

1530

00:58:42,870 --> 00:58:40,480

of the papers

1531

00:58:45,349 --> 00:58:42,880

and then you are actually also uh

1532

00:58:47,910 --> 00:58:45,359

editing a special issue in energetic so

1533

00:58:49,670 --> 00:58:47,920

academic at the moment the thermodynamic

1534

00:58:52,549 --> 00:58:49,680

and type the energy process anyone

1535

00:58:54,470 --> 00:58:52,559

interests some people will be greater uh

1536

00:58:55,430 --> 00:58:54,480

uh welcome and then we need to educate

1537

00:58:58,390 --> 00:58:55,440

because

1538

00:59:00,069 --> 00:58:58,400

it's the the the resistance in the the

1539

00:59:01,430 --> 00:59:00,079

scientific community is very strong

1540

00:59:04,470 --> 00:59:01,440

because they don't understand we need to

1541

00:59:06,390 --> 00:59:04,480

better educate thank you that's my point

1542

00:59:07,589 --> 00:59:06,400

yeah so anyone here from massachusetts

1543

00:59:10,789 --> 00:59:07,599

if anyone

1544

00:59:13,589 --> 00:59:10,799

have uh discovery uh top b energy

1545

00:59:16,470 --> 00:59:13,599

processes uh communicate with me email

1546

00:59:19,430 --> 00:59:16,480

me and we were very happy to

1547

00:59:21,030 --> 00:59:19,440

very uh open minded look into your

1548

00:59:22,309 --> 00:59:21,040

discovery and

1549

00:59:35,270 --> 00:59:22,319

communicate with

1550

00:59:45,990 --> 00:59:36,630

thank you so much

1551

00:59:49,030 --> 00:59:47,589

okay well hopefully we can meet in

1552

00:59:51,589 --> 00:59:49,040

person next year

1553

00:59:54,390 --> 00:59:51,599

yeah uh charlie and amber and and

1554

00:59:56,150 --> 00:59:54,400

professor model thank you this is good

1555

00:59:58,069 --> 00:59:56,160

good session

1556

00:59:59,190 --> 00:59:58,079

very nice session all right take care

1557

01:00:02,549 --> 00:59:59,200

everyone

1558

01:00:03,430 --> 01:00:02,559

thanks thank you bye-bye charles hi bye

1559

01:00:05,109 --> 01:00:03,440

garrett

1560

01:00:07,829 --> 01:00:05,119

good morning oh

1561

01:00:10,309 --> 01:00:07,839

charles can you send the recordings to

1562

01:00:11,910 --> 01:00:10,319

annalisa

1563

01:00:14,309 --> 01:00:11,920

um

1564

01:00:16,230 --> 01:00:14,319

well you know they're super huge uh you

1565

01:00:19,030 --> 01:00:16,240

know they're gonna maybe she can pick

1566

01:00:20,230 --> 01:00:19,040

them up off of youtube and download them

1567

01:00:22,230 --> 01:00:20,240

or

1568

01:00:24,870 --> 01:00:22,240

uh maybe there's a dropbox way i'm not

1569

01:00:26,309 --> 01:00:24,880

very good at that um i'll ask her to to

1570

01:00:28,950 --> 01:00:26,319

initiate yeah i'm not really sure the

1571

01:00:30,630 --> 01:00:28,960

best way to do that excuse me charles i

1572

01:00:32,230 --> 01:00:30,640

can weigh in on that garrett she can

1573

01:00:35,190 --> 01:00:32,240

definitely download them from our

1574

01:00:37,030 --> 01:00:35,200

youtube channel if she has a downloading

1575

01:00:38,470 --> 01:00:37,040

software you're welcome to do that it's

1576

01:00:41,109 --> 01:00:38,480

all open source

1577

01:00:43,910 --> 01:00:41,119

and if you'd like the videos intact they

1578

01:00:45,670 --> 01:00:43,920

are very large files but uh i can do

1579

01:00:48,710 --> 01:00:45,680

dropbox or something like that if you

1580

01:00:51,589 --> 01:00:48,720

just want the files just let me know my

1581

01:00:52,710 --> 01:00:51,599

email is kate unlab.us and i'll put that

1582

01:00:54,870 --> 01:00:52,720

in the chat

1583

01:00:56,710 --> 01:00:54,880

okay thank you

1584

01:00:59,349 --> 01:00:56,720

charles kate is there any chance of

1585

01:01:03,190 --> 01:00:59,359

getting powerpoints and pdfs for we

1586

01:01:04,630 --> 01:01:03,200

folks who do things in non-linear order

1587

01:01:07,109 --> 01:01:04,640

well you know that's i'm going to be

1588

01:01:09,750 --> 01:01:07,119

asking the speakers who would allow

1589

01:01:12,390 --> 01:01:09,760

their their presentations to be put up

1590

01:01:14,630 --> 01:01:12,400

on our website so we'll see uh you know

1591

01:01:17,270 --> 01:01:14,640

i put my charts up there

1592

01:01:20,309 --> 01:01:17,280

so that's something

1593

01:01:22,470 --> 01:01:20,319

really great thing yeah i could do mine

1594

01:01:23,990 --> 01:01:22,480

no problem yeah let's support that i

1595

01:01:26,470 --> 01:01:24,000

think if we think that if you sent out a

1596

01:01:28,309 --> 01:01:26,480

formal request to do so they might be

1597

01:01:30,230 --> 01:01:28,319

much quickly forthcoming and you can put

1598

01:01:32,230 --> 01:01:30,240

them up on your website yeah yeah that's

1599

01:01:33,030 --> 01:01:32,240

i'm definitely going to do that robert

1600

01:01:35,430 --> 01:01:33,040

thank you

1601
01:01:37,510 --> 01:01:35,440
29 hours of videos a bit much rather

1602
01:01:41,510 --> 01:01:37,520
than randomly looking for good stuff in

1603
01:01:47,030 --> 01:01:44,789
you can't text search a video as yet

1604
01:01:49,270 --> 01:01:47,040
robert we have transcripts of the chats

1605
01:01:50,870 --> 01:01:49,280
too that i can email you

1606
01:01:53,510 --> 01:01:50,880
well that would be wonderful absolutely

1607
01:01:55,109 --> 01:01:53,520
wonderful yeah

1608
01:01:56,950 --> 01:01:55,119
i'll get you back a diagram that

1609
01:01:59,430 --> 01:01:56,960
summarizes all the connectivity how do

1610
01:02:01,270 --> 01:01:59,440
you like that i like everything about it

1611
01:02:03,109 --> 01:02:01,280
and i can't wait to see you again thanks

1612
01:02:07,670 --> 01:02:03,119
for participating

1613
01:02:13,109 --> 01:02:10,230

uh research

1614

01:02:15,829 --> 01:02:13,119

yeah say that again jasic

1615

01:02:17,270 --> 01:02:15,839

barney jack if you want to pronounce my

1616

01:02:32,870 --> 01:02:17,280

polish uh

1617

01:02:37,349 --> 01:02:36,230

yes back to the root of the of our of

1618

01:02:40,870 --> 01:02:37,359

this

1619

01:02:43,910 --> 01:02:40,880

master who is researching

1620

01:02:46,069 --> 01:02:43,920

so you can experience something

1621

01:02:48,789 --> 01:02:46,079

very very

1622

01:02:52,390 --> 01:02:48,799

beautiful

1623

01:02:54,069 --> 01:02:52,400

this zero entropy

1624

01:02:58,390 --> 01:02:54,079

zero entropy

1625

01:03:02,789 --> 01:02:58,400

it's perfect harmony beauty

1626
01:03:03,750 --> 01:03:02,799
love compassion everything is just

1627
01:03:05,510 --> 01:03:03,760
this

1628
01:03:07,190 --> 01:03:05,520
light

1629
01:03:11,510 --> 01:03:07,200
perfect

1630
01:03:15,510 --> 01:03:13,510
i assure you

1631
01:03:18,710 --> 01:03:15,520
it's something different

1632
01:03:21,630 --> 01:03:18,720
to think it out

1633
01:03:27,029 --> 01:03:21,640
as to experiences

1634
01:03:29,349 --> 01:03:27,990
yes

1635
01:03:31,270 --> 01:03:29,359
if possible

1636
01:03:32,230 --> 01:03:31,280
yes and

1637
01:03:37,029 --> 01:03:32,240
then

1638
01:03:41,349 --> 01:03:40,150

functions of our might

1639

01:03:44,870 --> 01:03:41,359

stays

1640

01:03:47,990 --> 01:03:44,880

just open for everything

1641

01:03:51,430 --> 01:03:48,000

the essence from everything

1642

01:03:53,190 --> 01:03:51,440

and we have to dissolve

1643

01:04:02,630 --> 01:03:53,200

the

1644

01:04:05,670 --> 01:04:02,640

between spirituality

1645

01:04:07,990 --> 01:04:05,680

and science

1646

01:04:10,829 --> 01:04:08,000

it happened in our history

1647

01:04:14,470 --> 01:04:10,839

several several

1648

01:04:15,750 --> 01:04:14,480

um centuries ago as the science appeared

1649

01:04:17,190 --> 01:04:15,760

emerged

1650

01:04:18,630 --> 01:04:17,200

so it said

1651
01:04:19,990 --> 01:04:18,640
no religion

1652
01:04:24,470 --> 01:04:20,000
it's not

1653
01:04:25,510 --> 01:04:24,480
science not

1654
01:04:27,910 --> 01:04:25,520
outer

1655
01:04:29,510 --> 01:04:27,920
order and we forgot

1656
01:04:35,910 --> 01:04:29,520
the master

1657
01:04:39,430 --> 01:04:35,920
and we can go the both direction

1658
01:04:40,789 --> 01:04:39,440
i was struck by current as he told me

1659
01:04:41,589 --> 01:04:40,799
as he said

1660
01:04:44,309 --> 01:04:41,599
yeah

1661
01:04:48,630 --> 01:04:44,319
i'm not i'm percep i'm personally i'm

1662
01:04:50,789 --> 01:04:48,640
not professional in and quantum

1663
01:04:51,990 --> 01:04:50,799

theory but he said

1664

01:04:57,029 --> 01:04:52,000

in

1665

01:04:57,990 --> 01:04:57,039

quantum region there is zero entropy

1666

01:05:00,470 --> 01:04:58,000

right

1667

01:05:01,990 --> 01:05:00,480

zero perfect harmony

1668

01:05:03,270 --> 01:05:02,000

perfect

1669

01:05:04,069 --> 01:05:03,280

so

1670

01:05:09,430 --> 01:05:04,079

uh

1671

01:05:11,910 --> 01:05:10,710

we are

1672

01:05:16,630 --> 01:05:11,920

this

1673

01:05:20,829 --> 01:05:19,990

i am with you 100 percent

1674

01:05:24,710 --> 01:05:20,839

yes

1675

01:05:25,829 --> 01:05:24,720

uh-huh i was i was taking there was a

1676
01:05:28,470 --> 01:05:25,839
team

1677
01:05:29,510 --> 01:05:28,480
i think in australia

1678
01:05:32,069 --> 01:05:29,520
our

1679
01:05:35,990 --> 01:05:32,079
spiritual

1680
01:05:38,470 --> 01:05:36,000
teacher in berlin sent me a mail

1681
01:05:42,549 --> 01:05:38,480
if i could put a questionnaire about my

1682
01:05:43,990 --> 01:05:42,559
experience in um in my meditation

1683
01:05:45,190 --> 01:05:44,000
and

1684
01:05:51,829 --> 01:05:45,200
i just

1685
01:05:53,270 --> 01:05:51,839
several several uh

1686
01:05:55,510 --> 01:05:53,280
uh months

1687
01:06:00,069 --> 01:05:55,520
it was actually in september several

1688
01:06:03,430 --> 01:06:00,079

months later i became the the letter

1689

01:06:05,829 --> 01:06:03,440

from from this um

1690

01:06:07,190 --> 01:06:05,839

the man who organized this for the

1691

01:06:10,390 --> 01:06:07,200

scientists

1692

01:06:13,430 --> 01:06:10,400

and he he was so grateful

1693

01:06:14,710 --> 01:06:13,440

so my account was so uh

1694

01:06:16,230 --> 01:06:14,720

um

1695

01:06:19,190 --> 01:06:16,240

so uh

1696

01:06:21,670 --> 01:06:19,200

valid for him and

1697

01:06:23,829 --> 01:06:21,680

and they pushed these

1698

01:06:27,029 --> 01:06:23,839

research much forward

1699

01:06:28,069 --> 01:06:27,039

and there are many forgotten

1700

01:06:30,870 --> 01:06:28,079

uh

1701

01:06:31,990 --> 01:06:30,880

treasures in our culture

1702

01:06:33,510 --> 01:06:32,000

in our

1703

01:06:34,470 --> 01:06:33,520

experience

1704

01:06:37,910 --> 01:06:34,480

that we

1705

01:06:38,950 --> 01:06:37,920

forgotten and it is tragic tragic

1706

01:06:39,750 --> 01:06:38,960

really

1707

01:06:41,990 --> 01:06:39,760

yes

1708

01:06:44,789 --> 01:06:42,000

we have to go back to the to this

1709

01:06:47,430 --> 01:06:46,390

with spirituality

1710

01:06:50,549 --> 01:06:47,440

yes

1711

01:06:53,349 --> 01:06:50,559

so we can only then we will go forward

1712

01:06:57,109 --> 01:06:53,359

but i see you all folks

1713

01:07:00,789 --> 01:06:57,119

say about your experiences and ex i i i

1714

01:07:03,349 --> 01:07:00,799

i see it it goes in this

1715

01:07:04,630 --> 01:07:03,359

perfect harmony

1716

01:07:09,270 --> 01:07:04,640

in this

1717

01:07:11,190 --> 01:07:09,280

uh sea ocean of energy of beauty

1718

01:07:14,390 --> 01:07:11,200

of freedom

1719

01:07:15,589 --> 01:07:14,400

of everything yes this is our home we

1720

01:07:17,190 --> 01:07:15,599

are longing

1721

01:07:19,990 --> 01:07:17,200

to get there

1722

01:07:21,910 --> 01:07:20,000

there is no death there is no death

1723

01:07:25,029 --> 01:07:21,920

we are lo we are

1724

01:07:27,109 --> 01:07:25,039

when we lose this body

1725

01:07:30,470 --> 01:07:27,119

we will get another one

1726

01:07:33,750 --> 01:07:30,480

yes pointless to get the right one

1727

01:07:34,870 --> 01:07:33,760

and this and this is a karma

1728

01:07:41,029 --> 01:07:34,880

you

1729

01:07:43,510 --> 01:07:41,039

good thing and to help others

1730

01:07:48,069 --> 01:07:43,520

these key points of everything over

1731

01:07:48,079 --> 01:07:54,950

that's it yes

1732

01:07:59,670 --> 01:07:57,349

and we're all part of that

1733

01:08:01,510 --> 01:07:59,680

we are a part of that that

1734

01:08:02,950 --> 01:08:01,520

perfect entropy

1735

01:08:05,430 --> 01:08:02,960

no entropy

1736

01:08:10,950 --> 01:08:07,910

that is us that is us

1737

01:08:15,349 --> 01:08:10,960

yes we are part of this entropy we are

1738

01:08:16,709 --> 01:08:15,359

this entropy we are this entropy yes sir

1739

01:08:17,910 --> 01:08:16,719

right

1740

01:08:19,269 --> 01:08:17,920

yes

1741

01:08:22,709 --> 01:08:19,279

see you

1742

01:08:25,110 --> 01:08:22,719

yes send me an email or something please

1743

01:08:27,110 --> 01:08:25,120

i i have i had a

1744

01:08:29,510 --> 01:08:27,120

ideal uh

1745

01:08:31,510 --> 01:08:29,520

last day was so exciting for me i

1746

01:08:33,669 --> 01:08:31,520

couldn't sleep

1747

01:08:36,470 --> 01:08:33,679

too at night

1748

01:08:38,630 --> 01:08:36,480

say my ear

1749

01:08:39,430 --> 01:08:38,640

let's set up

1750

01:08:44,709 --> 01:08:39,440

the

1751

01:08:49,829 --> 01:08:47,910

i will write down and and and send you

1752

01:08:53,349 --> 01:08:49,839

how do you feel about

1753

01:08:55,910 --> 01:08:53,359

yes please do because i see in my

1754

01:08:58,950 --> 01:08:55,920

intuition it goes this

1755

01:09:00,390 --> 01:08:58,960

so so the quasi axioms

1756

01:09:05,110 --> 01:09:00,400

of

1757

01:09:10,950 --> 01:09:05,120

time is being

1758

01:09:16,470 --> 01:09:14,390

yes and then you know there's the

1759

01:09:18,550 --> 01:09:16,480

the universe where there is no time i

1760

01:09:21,669 --> 01:09:18,560

mean that is there is a place where you

1761

01:09:24,149 --> 01:09:21,679

can be where there is no time and all

1762

01:09:25,669 --> 01:09:24,159

all of time is there

1763

01:09:28,709 --> 01:09:25,679

at once

1764

01:09:30,070 --> 01:09:28,719

but this is one aspect the second aspect

1765

01:09:31,749 --> 01:09:30,080

of the void

1766

01:09:34,709 --> 01:09:31,759

is a function

1767

01:09:36,550 --> 01:09:34,719

of our entropy

1768

01:09:37,829 --> 01:09:36,560

and these functions

1769

01:09:40,630 --> 01:09:37,839

are

1770

01:09:47,349 --> 01:09:40,640

limitless

1771

01:09:49,910 --> 01:09:47,359

this failure the other had the last

1772

01:09:51,430 --> 01:09:49,920

question why do we have so many so many

1773

01:09:52,630 --> 01:09:51,440

failures

1774

01:09:55,590 --> 01:09:52,640

because

1775

01:09:57,750 --> 01:09:55,600

there are many functions in our mind

1776

01:10:00,950 --> 01:09:57,760

this is only one mind

1777

01:10:04,470 --> 01:10:00,960

it tries this way this way this way this

1778

01:10:06,149 --> 01:10:04,480

way this way this way this way it is

1779

01:10:10,709 --> 01:10:06,159

everything okay

1780

01:10:14,070 --> 01:10:10,719

without failure you wouldn't be wiser

1781

01:10:15,030 --> 01:10:14,080

yeah we're here to experience

1782

01:10:17,189 --> 01:10:15,040

yes

1783

01:10:18,390 --> 01:10:17,199

so go forward

1784

01:10:19,590 --> 01:10:18,400

yes

1785

01:10:22,470 --> 01:10:19,600

thank you

1786

01:10:25,110 --> 01:10:22,480

beautiful

1787

01:10:33,430 --> 01:10:25,120

thank you so much it was really

1788

01:10:37,830 --> 01:10:35,830

thank you charlie uh charlie sometimes

1789

01:10:40,950 --> 01:10:37,840

in the maybe sometime when you have time

1790

01:10:43,030 --> 01:10:40,960

can i have individual meetings maybe a

1791

01:10:44,870 --> 01:10:43,040

few weeks a week later or sometime when

1792

01:10:46,790 --> 01:10:44,880

you're convenient

1793

01:10:47,510 --> 01:10:46,800

yes certainly oh yeah yeah that would be

1794

01:10:49,110 --> 01:10:47,520

good

1795

01:10:50,630 --> 01:10:49,120

i would like to chat with you maybe on

1796

01:10:51,910 --> 01:10:50,640

zoom we can schedule something right

1797

01:10:55,990 --> 01:10:51,920

okay

1798

01:11:00,470 --> 01:10:56,000

wonderful session yes i think it's

1799

01:11:03,750 --> 01:11:01,910

one thing that's missing from this year

1800

01:11:05,990 --> 01:11:03,760

that it was very much always there the

1801

01:11:07,669 --> 01:11:06,000

first three years is you had a list of

1802

01:11:10,550 --> 01:11:07,679

contact info

1803

01:11:12,149 --> 01:11:10,560

and uh now we don't uh

1804

01:11:13,990 --> 01:11:12,159

can you pull together everybody's

1805

01:11:15,830 --> 01:11:14,000

contacting yes so we tried to gather

1806

01:11:17,270 --> 01:11:15,840

everyone's email we're going to be

1807

01:11:19,830 --> 01:11:17,280

putting that together

1808

01:11:21,110 --> 01:11:19,840

you need phone phone nowadays

1809

01:11:24,470 --> 01:11:21,120

yeah that would be helpful all the

1810

01:11:25,990 --> 01:11:24,480

follow-ups after this meeting yes yes

1811

01:11:28,390 --> 01:11:26,000

yeah that will be very helpful yes

1812

01:11:29,430 --> 01:11:28,400

contact information sure

1813

01:11:31,270 --> 01:11:29,440

yes

1814

01:11:32,229 --> 01:11:31,280

thank you both of you are wonderful i

1815

01:11:33,750 --> 01:11:32,239

think uh

1816

01:11:36,390 --> 01:11:33,760

thank you yeah

1817

01:11:38,070 --> 01:11:36,400

contact information very helpful yes yes

1818

01:11:40,229 --> 01:11:38,080

yes

1819

01:11:43,350 --> 01:11:40,239

to move on from here gennady did you

1820

01:11:46,950 --> 01:11:43,360

have something you would like to say or

1821

01:11:48,790 --> 01:11:46,960

uh me no no gennady is uh seems to be

1822

01:11:50,550 --> 01:11:48,800

here uh

1823

01:11:52,550 --> 01:11:50,560

listening i don't know i just wanted to

1824

01:11:53,510 --> 01:11:52,560

give you a chance

1825

01:11:57,030 --> 01:11:53,520

bye

1826
01:11:58,870 --> 01:11:57,040
hi thank you okay i'm gonna hang up now

1827
01:12:01,350 --> 01:11:58,880
take care everyone

1828
01:12:02,350 --> 01:12:01,360
such a pleasure bye robert so nice

1829
01:12:03,510 --> 01:12:02,360
hearing you again

1830
01:12:06,229 --> 01:12:03,520
[Music]

1831
01:12:08,390 --> 01:12:06,239
yes we will be meeting yeah sure yes

1832
01:12:10,709 --> 01:12:08,400
take care of my good friend evan

1833
01:12:11,990 --> 01:12:10,719
yes we will boy that's going to be fun

1834
01:12:15,350 --> 01:12:12,000
isn't it

1835
01:12:17,750 --> 01:12:15,360
you can imagine how excited i am

1836
01:12:18,870 --> 01:12:17,760
at 24 he's going to become a man that's

1837
01:12:20,950 --> 01:12:18,880
great

1838
01:12:22,950 --> 01:12:20,960

right right exactly and he'll get to

1839

01:12:24,950 --> 01:12:22,960

play casually

1840

01:12:28,070 --> 01:12:24,960

he loves the carriage house i think that

1841

01:12:30,870 --> 01:12:28,080

was so great so nice

1842

01:12:32,950 --> 01:12:30,880

isolated no roommates i told them this

1843

01:12:35,430 --> 01:12:32,960

is the ideal life you want skip over

1844

01:12:39,030 --> 01:12:35,440

roommates you know yeah yeah for an

1845

01:12:40,709 --> 01:12:39,040

introvert like us it's perfect right yes

1846

01:12:42,229 --> 01:12:40,719

he's only a mile and a half from our

1847

01:12:44,630 --> 01:12:42,239

house and he's right in between our

1848

01:12:48,310 --> 01:12:44,640

house and the tennis courts and so uh

1849

01:12:50,470 --> 01:12:48,320

he's gonna he's the karate

1850

01:12:53,350 --> 01:12:50,480

he'll miss karate but he'll play tennis

1851

01:12:55,990 --> 01:12:53,360

maybe he can find a new product

1852

01:12:57,910 --> 01:12:56,000

he'll find a club in there i'm sure yeah

1853

01:13:00,149 --> 01:12:57,920

he'll find him might be 20 miles away

1854

01:13:03,189 --> 01:13:00,159

but he'll find a club he's got a really

1855

01:13:05,510 --> 01:13:03,199

unique intelligence yeah yeah the the

1856

01:13:07,590 --> 01:13:05,520

main the main my main job the last six

1857

01:13:09,830 --> 01:13:07,600

months which was very successful was

1858

01:13:13,590 --> 01:13:09,840

getting him off video games

1859

01:13:18,390 --> 01:13:15,750

he loves his video games yes he does

1860

01:13:19,750 --> 01:13:18,400

well since we're gonna be building

1861

01:13:21,910 --> 01:13:19,760

since we're gonna be building the model

1862

01:13:23,990 --> 01:13:21,920

one of the ideas is to make it enjoyable

1863

01:13:25,669 --> 01:13:24,000

like a game so his love of gaming will

1864

01:13:27,270 --> 01:13:25,679

probably actually come in handy it'll

1865

01:13:28,790 --> 01:13:27,280

come in handy and the model we're

1866

01:13:30,470 --> 01:13:28,800

designing yes

1867

01:13:32,149 --> 01:13:30,480

all right well let's go make dinner yeah

1868

01:13:34,390 --> 01:13:32,159

and diane i just wanted to say i like

1869

01:13:35,910 --> 01:13:34,400

your thought yay let's be the violation

1870

01:13:37,270 --> 01:13:35,920

let's go

1871

01:13:42,630 --> 01:13:37,280

all right