



1  
00:00:24,519 --> 00:00:16,080

[Music]

2  
00:00:27,609 --> 00:00:24,529

thank you you've heard some very

3  
00:00:29,740 --> 00:00:27,619

interesting technologies so far so let's

4  
00:00:32,380 --> 00:00:29,750

go a little bit farther and just see

5  
00:00:34,990 --> 00:00:32,390

what's there and discuss what we can

6  
00:00:37,330 --> 00:00:35,000

believe or not so let's say that you are

7  
00:00:39,700 --> 00:00:37,340

an investor and somebody comes to you

8  
00:00:43,390 --> 00:00:39,710

with a rotating machine and this

9  
00:00:45,280 --> 00:00:43,400

rotating machine just keeps on turning

10  
00:00:46,780 --> 00:00:45,290

and it's got a little fan blade in front

11  
00:00:49,300 --> 00:00:46,790

of it so it's blowing air

12  
00:00:51,819 --> 00:00:49,310

it's obviously putting power out there's

13  
00:00:54,340 --> 00:00:51,829

no evident power going in and it just

14

00:00:57,670 --> 00:00:54,350

keeps on going and going this happened

15

00:01:01,000 --> 00:00:57,680

to me by the way where I did see this so

16

00:01:04,780 --> 00:01:01,010

the question then is you've seen the

17

00:01:07,420 --> 00:01:04,790

demonstration should you invest or if

18

00:01:09,730 --> 00:01:07,430

not what else do you need to do what

19

00:01:12,069 --> 00:01:09,740

else do you need to know and that's the

20

00:01:14,590 --> 00:01:12,079

question I have in approaching a lot of

21

00:01:17,289 --> 00:01:14,600

these technologies so I'm going to end

22

00:01:19,469 --> 00:01:17,299

this presentation talk about a few

23

00:01:22,980 --> 00:01:19,479

examples of some of these technologies

24

00:01:25,569 --> 00:01:22,990

talk about where the mainstream

25

00:01:28,770 --> 00:01:25,579

mainstream science and technology might

26  
00:01:32,949 --> 00:01:28,780  
be going wrong in assessing these and

27  
00:01:36,160 --> 00:01:32,959  
then the third part of this is where the

28  
00:01:38,679 --> 00:01:36,170  
inventors may themselves be going wrong

29  
00:01:40,779 --> 00:01:38,689  
instead there are many of these if you

30  
00:01:42,879 --> 00:01:40,789  
take a look on the internet take a look

31  
00:01:45,429 --> 00:01:42,889  
at YouTube there are lots and lots of

32  
00:01:47,499 --> 00:01:45,439  
these technologies I don't have time to

33  
00:01:50,709 --> 00:01:47,509  
go into all of them I'm just going to

34  
00:01:53,349 --> 00:01:50,719  
pick a few spot examples to talk about

35  
00:01:56,440 --> 00:01:53,359  
very quickly and then go ahead and talk

36  
00:01:59,679 --> 00:01:56,450  
about the other aspects one thing I will

37  
00:02:02,199 --> 00:01:59,689  
try to do in this presentation is to

38  
00:02:04,629 --> 00:02:02,209

avoid giving my opinion on these

39

00:02:07,870 --> 00:02:04,639

technologies instead I just want to put

40

00:02:12,010 --> 00:02:07,880

them out there for now so you've heard

41

00:02:14,890 --> 00:02:12,020

from Professor Violante about low energy

42

00:02:19,000 --> 00:02:14,900

nuclear reaction since pons and

43

00:02:20,860 --> 00:02:19,010

Fleischmann in 1989 who

44

00:02:25,949 --> 00:02:20,870

developed what at the time was called

45

00:02:29,289 --> 00:02:25,959

cold fusion it seems to have existed but

46

00:02:32,589 --> 00:02:29,299

people aren't sure sometimes you get it

47

00:02:37,720 --> 00:02:32,599

to work sometimes you don't probably one

48

00:02:40,630 --> 00:02:37,730

of the the most long-term investigator

49

00:02:44,220 --> 00:02:40,640

of this who's gone into great depth is

50

00:02:47,319 --> 00:02:44,230

Micro kübra sitting in the room and

51  
00:02:49,839 --> 00:02:47,329  
professor Violante is is is one of the

52  
00:02:54,250 --> 00:02:49,849  
current leaders who's shown us some real

53  
00:02:58,390 --> 00:02:54,260  
understanding but do we believe it

54  
00:03:01,000 --> 00:02:58,400  
if you look at somebody like the rossi

55  
00:03:06,309 --> 00:03:01,010  
ecat many of you have heard about this

56  
00:03:09,640 --> 00:03:06,319  
this is a supposed to be a large cold

57  
00:03:12,099 --> 00:03:09,650  
fusion reactor built in Italy he's had a

58  
00:03:14,140 --> 00:03:12,109  
lot of investors interested he's had

59  
00:03:18,729 --> 00:03:14,150  
various sorts of tests that have been

60  
00:03:20,830 --> 00:03:18,739  
carried out since 2011 is it real we

61  
00:03:24,240 --> 00:03:20,840  
still haven't had a truly independent

62  
00:03:27,520 --> 00:03:24,250  
test of this you can ask the question

63  
00:03:30,879 --> 00:03:27,530

there's another company def Kalyan in

64

00:03:36,580 --> 00:03:30,889

Greece that for a while was considered

65

00:03:41,819 --> 00:03:36,590

the great hope they presented to the

66

00:03:45,129 --> 00:03:41,829

world the the apparently excess energy

67

00:03:47,920 --> 00:03:45,139

recently there was an analysis of this

68

00:03:49,710 --> 00:03:47,930

by Gambhir le which essentially

69

00:03:53,099 --> 00:03:49,720

demolished that and showed that in fact

70

00:03:55,689 --> 00:03:53,109

what they exposed as being what they

71

00:03:59,559 --> 00:03:55,699

wanted to show as being excess energy

72

00:04:04,000 --> 00:03:59,569

was probably due to a Mis measurement

73

00:04:07,089 --> 00:04:04,010

where they measured the temperature of a

74

00:04:09,430 --> 00:04:07,099

flow through a certain area and this

75

00:04:11,890 --> 00:04:09,440

temperature showed excess heat but the

76

00:04:13,899 --> 00:04:11,900

flow was completely wrong and so they

77

00:04:18,909 --> 00:04:13,909

actually got much less excess heat than

78

00:04:21,699 --> 00:04:18,919

they had so here I guess I will express

79

00:04:24,520 --> 00:04:21,709

an opinion low energy nuclear reaction

80

00:04:25,779 --> 00:04:24,530

is real there's there's at this point I

81

00:04:28,089 --> 00:04:25,789

believe there's no question about it

82

00:04:31,930 --> 00:04:28,099

what it is they're they're still

83

00:04:32,770 --> 00:04:31,940

questions about I have had two PhD

84

00:04:34,870 --> 00:04:32,780

students were

85

00:04:37,060 --> 00:04:34,880

King on low-energy nuclear reaction

86

00:04:38,680 --> 00:04:37,070

among other technologies and one of them

87

00:04:41,620 --> 00:04:38,690

was Olga Dmitri Eva who you've heard

88

00:04:46,629 --> 00:04:41,630

from at the SSE she made a presentation

89

00:04:49,659 --> 00:04:46,639

in 2012 and in her work she looked at

90

00:04:52,990 --> 00:04:49,669

one type of low energy nuclear reaction

91

00:04:55,960 --> 00:04:53,000

which is a gas phase no process the

92

00:04:58,360 --> 00:04:55,970

reason she chose that is that it seemed

93

00:05:00,760 --> 00:04:58,370

to give excess heat very repeatedly

94

00:05:05,290 --> 00:05:00,770

whereas this liquid phase stuff

95

00:05:08,880 --> 00:05:05,300

electrolysis is less predictable and so

96

00:05:12,040 --> 00:05:08,890

she did some deep work on this and

97

00:05:15,430 --> 00:05:12,050

demonstrated very clearly that it was

98

00:05:17,650 --> 00:05:15,440

not due to any sort of nuclear fusion

99

00:05:20,560 --> 00:05:17,660

but in fact was a chemical reaction that

100

00:05:23,170 --> 00:05:20,570

when you've got deuterium in the

101  
00:05:24,310 --> 00:05:23,180  
presence of water contamination which is

102  
00:05:27,550 --> 00:05:24,320  
nearly always there

103  
00:05:29,080 --> 00:05:27,560  
the deuterium replaces the hydrogen in

104  
00:05:31,570 --> 00:05:29,090  
the water that's an exothermic reaction

105  
00:05:34,000 --> 00:05:31,580  
and you get excess heat and if you're

106  
00:05:36,610 --> 00:05:34,010  
not careful you can mistake it for being

107  
00:05:38,590 --> 00:05:36,620  
fusion and she showed this both putting

108  
00:05:40,840 --> 00:05:38,600  
the hydrogen in taking the hydrogen out

109  
00:05:43,270 --> 00:05:40,850  
in deuterium and so on

110  
00:05:49,029 --> 00:05:43,280  
another type of reaction that she looked

111  
00:05:52,779 --> 00:05:49,039  
at was a gas phase measurement in a

112  
00:05:56,830 --> 00:05:52,789  
uniform temperature chamber which is a

113  
00:05:59,790 --> 00:05:56,840

sort of calorimeter that people used for

114

00:06:02,020 --> 00:05:59,800

these measurements and and the

115

00:06:05,290 --> 00:06:02,030

instrument that she looked at is a very

116

00:06:07,120 --> 00:06:05,300

high quality system which is supposed to

117

00:06:09,880 --> 00:06:07,130

maintain the temperature within a small

118

00:06:12,850 --> 00:06:09,890

fraction of a degree but what she found

119

00:06:16,029 --> 00:06:12,860

was that slight variations in the

120

00:06:20,320 --> 00:06:16,039

temperature inside that chamber could

121

00:06:22,029 --> 00:06:20,330

lead to extremely misleading amounts of

122

00:06:24,279 --> 00:06:22,039

excess heat that you believed were

123

00:06:26,080 --> 00:06:24,289

produced in the system so you would

124

00:06:30,870 --> 00:06:26,090

think you're getting excess heat when in

125

00:06:34,090 --> 00:06:33,100

asymmetries temperature gradients in the

126

00:06:36,790 --> 00:06:34,100

system and she showed this

127

00:06:39,460 --> 00:06:36,800

experimentally theoretically and through

128

00:06:42,010 --> 00:06:39,470

simulations so what's the point here the

129

00:06:43,630 --> 00:06:42,020

point is that you've got to be very very

130

00:06:47,500 --> 00:06:43,640

careful you've got to do the sort of

131

00:06:51,130 --> 00:06:47,510

careful work that dr. Violante has been

132

00:06:53,170 --> 00:06:51,140

doing we heard about the pap engine so

133

00:06:55,570 --> 00:06:53,180

the pap engine apparently was

134

00:06:58,120 --> 00:06:55,580

demonstrated there's lots of evidence it

135

00:07:01,649 --> 00:06:58,130

was demonstrated it was also mocked what

136

00:07:04,240 --> 00:07:01,659

do you believe there's another type of

137

00:07:08,469 --> 00:07:04,250

exotic energy technology called

138

00:07:10,270 --> 00:07:08,479

cavitation in cavitation bubbles are

139

00:07:12,700 --> 00:07:10,280

formed in a liquid and these bubbles

140

00:07:17,080 --> 00:07:12,710

collapse and when they collapse they

141

00:07:19,390 --> 00:07:17,090

collapse very violently and in fact the

142

00:07:23,649 --> 00:07:19,400

collapse can be supersonic and then can

143

00:07:28,210 --> 00:07:23,659

eject material so intensely that that

144

00:07:33,760 --> 00:07:28,220

material might produce fusion telle

145

00:07:38,170 --> 00:07:33,770

Arkin showed this at Purdue in 2004 and

146

00:07:40,750 --> 00:07:38,180

he was later accused of fraud and his

147

00:07:42,460 --> 00:07:40,760

career essentially was demolished what's

148

00:07:44,620 --> 00:07:42,470

the truth there

149

00:07:48,490 --> 00:07:44,630

more recently mark LeClair has

150

00:07:51,040 --> 00:07:48,500

demonstrated cavitation and he's shown a

151

00:07:52,960 --> 00:07:51,050

whole array of nuclear products that

152

00:07:56,890 --> 00:07:52,970

come out of this cavitation reaction

153

00:08:00,960 --> 00:07:56,900

including unfortunately radiation

154

00:08:05,920 --> 00:08:00,970

poisoning of himself and his lab partner

155

00:08:08,230 --> 00:08:05,930

is this real what can you do with it

156

00:08:09,820 --> 00:08:08,240

backlight power has been around for a

157

00:08:11,860 --> 00:08:09,830

number of years I've sort of followed

158

00:08:15,610 --> 00:08:11,870

their website for for more than a decade

159

00:08:17,830 --> 00:08:15,620

and periodically they say that they're

160

00:08:21,130 --> 00:08:17,840

going they've got a product it's about

161

00:08:24,460 --> 00:08:21,140

to come out it's going to be sold and it

162

00:08:29,170 --> 00:08:24,470

produces excess energy how does this

163

00:08:31,899 --> 00:08:29,180

work the the leader the president dr.

164

00:08:34,449 --> 00:08:31,909

Mills has a theory of a hide Reno which

165

00:08:38,020 --> 00:08:34,459

is a sub ground state hydrogen atom that

166

00:08:42,250 --> 00:08:38,030

is used in this nickel hydride type of

167

00:08:44,590 --> 00:08:42,260

system to produce excess energy they've

168

00:08:49,420 --> 00:08:44,600

raised more than 60 million dollars over

169

00:08:51,939 --> 00:08:49,430

this period of time is it real another

170

00:08:55,960 --> 00:08:51,949

one that I find fascinating is T Henry

171

00:08:58,569 --> 00:08:55,970

Henry Moray in the early 20th century he

172

00:09:01,269 --> 00:08:58,579

repeatedly demonstrated the

173

00:09:03,129 --> 00:09:01,279

could capture atmospheric radiation and

174

00:09:04,660 --> 00:09:03,139

he had this system where he had a big

175

00:09:06,280 --> 00:09:04,670

roll of light bulbs that were

176

00:09:09,879 --> 00:09:06,290

illuminated by the energy that was

177

00:09:12,910 --> 00:09:09,889

captured it's a lot like by the way to

178

00:09:15,639 --> 00:09:12,920

test some Tesla systems for gathering

179

00:09:19,539 --> 00:09:15,649

atmospheric radiation is this real can

180

00:09:21,879 --> 00:09:19,549

we use it we've got to be careful there

181

00:09:23,259 --> 00:09:21,889

are over statements in the field there

182

00:09:29,160 --> 00:09:23,269

are these two characters

183

00:09:33,939 --> 00:09:29,170

- Modell and they purportedly invented a

184

00:09:36,669 --> 00:09:33,949

scheme for harvesting zero-point energy

185

00:09:38,530 --> 00:09:36,679

actually Bernie high-ish is here and he

186

00:09:42,789 --> 00:09:38,540

came up with this idea and worked with

187

00:09:44,859 --> 00:09:42,799

me on demonstrating it and we've done a

188

00:09:47,999 --> 00:09:44,869

number of experiments they were reported

189

00:09:50,559 --> 00:09:48,009

here at the SSE several times I

190

00:09:56,829 --> 00:09:50,569

presented this at a different meeting

191

00:09:58,600 --> 00:09:56,839

about a year and a half ago and I was

192

00:10:00,009 --> 00:09:58,610

very careful at the beginning of the

193

00:10:03,280 --> 00:10:00,019

presentation at the end of the

194

00:10:06,249 --> 00:10:03,290

presentation to say that the results are

195

00:10:08,439 --> 00:10:06,259

ambiguous they're not proven we do get

196

00:10:11,139 --> 00:10:08,449

excess heat we don't know that it's due

197

00:10:13,809 --> 00:10:11,149

to a zero point energy source and

198

00:10:15,479 --> 00:10:13,819

further work is required to draw firm

199

00:10:18,489 --> 00:10:15,489

conclusions I even wrote this on a slide

200

00:10:21,309 --> 00:10:18,499

then a little bit later a report came

201  
00:10:23,729 --> 00:10:21,319  
out from that meeting and the report

202  
00:10:27,100 --> 00:10:23,739  
stated and it's down here in the green

203  
00:10:29,289 --> 00:10:27,110  
their unusual theory of constricting a

204  
00:10:31,749 --> 00:10:29,299  
gas atom quantum mechanically and then

205  
00:10:32,319 --> 00:10:31,759  
looking for a release of energy actually

206  
00:10:34,629 --> 00:10:32,329  
worked

207  
00:10:38,169 --> 00:10:34,639  
showing that zero-point energy can be

208  
00:10:40,389 --> 00:10:38,179  
utilized to produce energy you've got to

209  
00:10:42,909 --> 00:10:40,399  
be careful what you believe you really

210  
00:10:45,850 --> 00:10:42,919  
have got to be careful so what can we

211  
00:10:48,699 --> 00:10:45,860  
believe there are a number of reasons

212  
00:10:49,840 --> 00:10:48,709  
that the mainstream goes wrong one of

213  
00:10:50,949 --> 00:10:49,850

these has to do with information

214

00:10:53,829 --> 00:10:50,959

Cascades

215

00:10:56,619 --> 00:10:53,839

the idea here is that an expert gives an

216

00:10:58,720 --> 00:10:56,629

erroneous opinion and it remains despite

217

00:11:00,970 --> 00:10:58,730

all sorts of contradictory evidence and

218

00:11:04,389 --> 00:11:00,980

there are many examples the poster child

219

00:11:07,299 --> 00:11:04,399

for this is a guy called an selkies who

220

00:11:09,069 --> 00:11:07,309

was a nutritionist in the 1950s and

221

00:11:12,020 --> 00:11:09,079

based on an incomplete study

222

00:11:13,940 --> 00:11:12,030

he said that fat is bad for you

223

00:11:19,060 --> 00:11:13,950

and we should be eating carbohydrates

224

00:11:24,340 --> 00:11:19,070

and protein but not fat and this set off

225

00:11:28,070 --> 00:11:24,350

sixty years of false and inappropriate

226  
00:11:29,660 --> 00:11:28,080  
dietary recommendations in the United

227  
00:11:31,910 --> 00:11:29,670  
States and elsewhere in the world

228  
00:11:37,340 --> 00:11:31,920  
many people suffer many people died

229  
00:11:39,320 --> 00:11:37,350  
because of this incorrect information

230  
00:11:41,990 --> 00:11:39,330  
and in fact there was evidence that he

231  
00:11:44,210 --> 00:11:42,000  
was wrong right away in the 50s but he

232  
00:11:46,910 --> 00:11:44,220  
was the expert he said it and it's stuck

233  
00:11:48,560 --> 00:11:46,920  
and it's stuck and only recently are we

234  
00:11:51,080 --> 00:11:48,570  
finally learning that eating good fats

235  
00:11:53,090 --> 00:11:51,090  
is actually very good for you there are

236  
00:11:57,140 --> 00:11:53,100  
other ones there are lots and lots of

237  
00:11:59,870 --> 00:11:57,150  
them water fluoridation sun exposure and

238  
00:12:02,590 --> 00:11:59,880

a question is does this also apply to a

239

00:12:04,370 --> 00:12:02,600

new sort of energy sources is there a

240

00:12:07,310 --> 00:12:04,380

cascade that's going in the wrong

241

00:12:10,610 --> 00:12:07,320

direction there's also the issue of

242

00:12:12,830 --> 00:12:10,620

consensus scientific consensus says that

243

00:12:19,730 --> 00:12:12,840

these new energy technologies are bunk

244

00:12:23,440 --> 00:12:19,740

that that Violante Sheahan pap all of

245

00:12:28,280 --> 00:12:23,450

these guys are clear quacks is that true

246

00:12:30,590 --> 00:12:28,290

so we know from kuhn from the structure

247

00:12:33,560 --> 00:12:30,600

of scientific revolutions that science

248

00:12:35,720 --> 00:12:33,570

goes through various paradigms where

249

00:12:37,880 --> 00:12:35,730

evidence keeps building up that

250

00:12:39,860 --> 00:12:37,890

something is wrong people say no no no

251

00:12:41,600 --> 00:12:39,870

the what we believe is right it's right

252

00:12:44,690 --> 00:12:41,610

it's right until finally there's a

253

00:12:47,330 --> 00:12:44,700

revolution and things change and so we

254

00:12:49,340 --> 00:12:47,340

have seen many examples of consensus

255

00:12:51,530 --> 00:12:49,350

science there there's very many of them

256

00:12:54,260 --> 00:12:51,540

so there was the consensus which was

257

00:12:56,300 --> 00:12:54,270

against Galileo in heliocentric solar

258

00:12:59,630 --> 00:12:56,310

system there was the consensus for many

259

00:13:02,420 --> 00:12:59,640

years that was against a Wegener and a

260

00:13:05,540 --> 00:13:02,430

continental drift there's a consensus

261

00:13:07,250 --> 00:13:05,550

right now about anthropogenic causes for

262

00:13:09,290 --> 00:13:07,260

climate change I'm not saying it's wrong

263

00:13:10,820 --> 00:13:09,300

or right but doesn't it's sort of

264

00:13:14,480 --> 00:13:10,830

consensus science and there are many

265

00:13:16,760 --> 00:13:14,490

more what should we say about consensus

266

00:13:18,590 --> 00:13:16,770

Michael Crichton was very clear about it

267

00:13:21,860 --> 00:13:18,600

and this is just one of a number of

268

00:13:24,860 --> 00:13:21,870

statements he said consensus is involved

269

00:13:25,820 --> 00:13:24,870

invoked only in situations where the

270

00:13:28,850 --> 00:13:25,830

science is now

271

00:13:33,740 --> 00:13:28,860

solid enough just because everybody says

272

00:13:35,750 --> 00:13:33,750

so doesn't make it so so that's one side

273

00:13:38,360 --> 00:13:35,760

now let's take a look at the other side

274

00:13:40,940 --> 00:13:38,370

where can inventors go wrong where do

275

00:13:43,550 --> 00:13:40,950

some of these inventors go wrong I've

276

00:13:45,500 --> 00:13:43,560

been exposed to this because I'm an

277

00:13:47,900 --> 00:13:45,510

academic position and people know I work

278

00:13:50,120 --> 00:13:47,910

on new energy technologies and so I get

279

00:13:54,620 --> 00:13:50,130

emails and calls and things to referee

280

00:13:56,420 --> 00:13:54,630

and I've seen now many times this the

281

00:14:02,260 --> 00:13:56,430

the sort of flaws that I'm going to

282

00:14:05,330 --> 00:14:02,270

present to you and they're based on I

283

00:14:08,930 --> 00:14:05,340

believe this this this dumbing Krueger

284

00:14:11,750 --> 00:14:08,940

effect and the the idea here it's a this

285

00:14:14,510 --> 00:14:11,760

is a psychological effect in which there

286

00:14:16,640 --> 00:14:14,520

are two types of cognitive bias one is

287

00:14:17,420 --> 00:14:16,650

where unskilled people don't recognize

288

00:14:21,020 --> 00:14:17,430

they're stupid

289

00:14:23,660 --> 00:14:21,030

and so they rape their ability much

290

00:14:25,100 --> 00:14:23,670

higher than is accurate and stupid is a

291

00:14:26,780 --> 00:14:25,110

relative sense here I mean in other

292

00:14:29,270 --> 00:14:26,790

words they're uninformed in one

293

00:14:31,160 --> 00:14:29,280

particular field on the other hand

294

00:14:33,310 --> 00:14:31,170

highly skilled people think everybody

295

00:14:36,590 --> 00:14:33,320

knows what they know and they underrate

296

00:14:38,720 --> 00:14:36,600

what they're saying and so you see this

297

00:14:40,910 --> 00:14:38,730

sort of a curve here where if you look

298

00:14:43,910 --> 00:14:40,920

at experience the very inexperienced

299

00:14:46,250 --> 00:14:43,920

people are the ones who are making the

300

00:14:47,870 --> 00:14:46,260

the grand statements I have to say I've

301

00:14:50,360 --> 00:14:47,880

been in that position myself when I

302

00:14:52,880 --> 00:14:50,370

start off in a new field I often think I

303

00:14:57,080 --> 00:14:52,890

understand everything until I realize I

304

00:14:59,900 --> 00:14:57,090

don't so our new energy inventors in

305

00:15:02,360 --> 00:14:59,910

this category one thing that I've seen

306

00:15:04,370 --> 00:15:02,370

over and over and over I saw it just two

307

00:15:06,820 --> 00:15:04,380

weeks ago again I was looking up the PAP

308

00:15:10,370 --> 00:15:06,830

engine there was there's a YouTube video

309

00:15:12,710 --> 00:15:10,380

showing somebody measuring the output of

310

00:15:14,810 --> 00:15:12,720

the up there PAP engine they measure the

311

00:15:17,090 --> 00:15:14,820

voltage they they see this they measure

312

00:15:18,500 --> 00:15:17,100

the current they see that they multiply

313

00:15:20,570 --> 00:15:18,510

the two together say that's the power

314

00:15:22,730 --> 00:15:20,580

and so we got we got more power out

315

00:15:26,330 --> 00:15:22,740

than we put in so let's take a look at

316

00:15:30,110 --> 00:15:26,340

that if you look at a sinusoidal lead

317

00:15:32,690 --> 00:15:30,120

varying voltage in the blue here and a

318

00:15:35,450 --> 00:15:32,700

sinusoidal e varying current in the red

319

00:15:37,820 --> 00:15:35,460

voltage times current is power and so

320

00:15:39,590 --> 00:15:37,830

the green shows you the power and the

321

00:15:44,210 --> 00:15:39,600

power in this case is  $P_{av}$

322

00:15:47,690 --> 00:15:44,220

it goes through two cycles if we then

323

00:15:49,640 --> 00:15:47,700

take a look at a voltage and current

324

00:15:51,950 --> 00:15:49,650

that are out of phase with each other

325

00:15:54,200 --> 00:15:51,960

and you multiply them together you get a

326

00:15:55,970 --> 00:15:54,210

sinusoidal oscillation that goes

327

00:15:59,210 --> 00:15:55,980

positive and negative this is called

328

00:16:01,460 --> 00:15:59,220

reactive power it does not give you any

329

00:16:03,140 --> 00:16:01,470

real power you cannot measure measure

330

00:16:05,000 --> 00:16:03,150

voltage and power separately you've

331

00:16:07,280 --> 00:16:05,010

gotta measure them together there's the

332

00:16:09,020 --> 00:16:07,290

second law of thermodynamics Daniel

333

00:16:11,270 --> 00:16:09,030

Sheehan certainly explained that to us

334

00:16:13,520 --> 00:16:11,280

one in one way of stating it is that

335

00:16:15,140 --> 00:16:13,530

it's impossible to convert heat from a

336

00:16:17,750 --> 00:16:15,150

system at uniform temperature and to

337

00:16:20,900 --> 00:16:17,760

work so I was emailed this invention

338

00:16:23,870 --> 00:16:20,910

it's essentially what I'm gonna show you

339

00:16:26,720 --> 00:16:23,880

a triangular chamber with some gas in it

340

00:16:29,630 --> 00:16:26,730

the gas is going to bounce dominantly

341

00:16:31,160 --> 00:16:29,640

towards the fat end of the chamber

342

00:16:33,080 --> 00:16:31,170

because every time it hits this wall

343

00:16:35,990 --> 00:16:33,090

it'll bounce to the left and that's what

344

00:16:38,450 --> 00:16:36,000

you see here you could make a version of

345

00:16:40,340 --> 00:16:38,460

this which is circular and so the gas is

346

00:16:42,890 --> 00:16:40,350

going to go sort of around and around in

347

00:16:44,330 --> 00:16:42,900

the circle and the idea was you can

348

00:16:45,920 --> 00:16:44,340

invent you can have gas just

349

00:16:48,200 --> 00:16:45,930

continuously flowing you can make a

350

00:16:50,690 --> 00:16:48,210

motor that goes forever and ever does it

351

00:16:53,060 --> 00:16:50,700

work well there's a problem here and

352

00:16:56,600 --> 00:16:53,070

that is and this is classical second law

353

00:16:58,820 --> 00:16:56,610

stuff there's going to be a buildup of

354

00:17:00,680 --> 00:16:58,830

gas on one side so there will be this

355

00:17:02,480 --> 00:17:00,690

bouncing of the gas preferentially in

356

00:17:03,920 --> 00:17:02,490

one direction but there's also going to

357

00:17:06,500 --> 00:17:03,930

be a diffusion gradient in the other

358

00:17:08,210 --> 00:17:06,510

direction and a gas will diffuse in the

359

00:17:11,569 --> 00:17:08,220

other way and you end up with no net

360

00:17:14,030 --> 00:17:11,579

motion so does the second law always

361

00:17:17,750 --> 00:17:14,040

apply Daniel Sheehan beautifully

362

00:17:18,439 --> 00:17:17,760

described an example where it doesn't it

363

00:17:22,160 --> 00:17:18,449

does apply

364

00:17:25,010 --> 00:17:22,170

I believe mostly near equilibrium and in

365

00:17:26,390 --> 00:17:25,020

closed systems maybe not always where

366

00:17:28,640 --> 00:17:26,400

does it not apply well it certainly

367

00:17:31,160 --> 00:17:28,650

doesn't apply far from equilibrium in

368

00:17:33,770 --> 00:17:31,170

fast changing systems and open systems

369

00:17:36,410 --> 00:17:33,780

and in other cases then we've got the

370

00:17:38,660 --> 00:17:36,420

case of conservation of energy that the

371

00:17:43,970 --> 00:17:38,670

total energy of a closed system does not

372

00:17:46,640 --> 00:17:43,980

change well I was reviewing a little

373

00:17:48,440 --> 00:17:46,650

article a while ago in which somebody

374

00:17:50,690 --> 00:17:48,450

said he had a very simple demonstration

375

00:17:52,960 --> 00:17:50,700

for how conservation of energy can be

376

00:17:55,149 --> 00:17:52,970

broken and it can be broken simply

377

00:17:58,240 --> 00:17:55,159

accelerating an object with a constant

378

00:18:02,080 --> 00:17:58,250

force so according to this paper what

379

00:18:05,320 --> 00:18:02,090

you do is you just give a constant push

380

00:18:07,029 --> 00:18:05,330

to an object and I won't go through the

381

00:18:09,610 --> 00:18:07,039

arithmetic right here but you can very

382

00:18:11,909 --> 00:18:09,620

easily show that the kinetic energy the

383

00:18:14,350 --> 00:18:11,919

energy of motion of this particle

384

00:18:16,419 --> 00:18:14,360

increases with time squared

385

00:18:19,450 --> 00:18:16,429

when you're applying a constant velocity

386

00:18:23,230 --> 00:18:19,460

it goes as velocity of energy is the

387

00:18:25,860 --> 00:18:23,240

velocity squared and the energy the

388

00:18:29,440 --> 00:18:25,870

kinetic energy goes as time squared

389

00:18:32,890 --> 00:18:29,450

so therefore and this was in in that

390

00:18:36,580 --> 00:18:32,900

paper if you have energy versus time

391

00:18:38,590 --> 00:18:36,590

there's a cumulative increase in the

392

00:18:40,240 --> 00:18:38,600

input energy that goes linearly with

393

00:18:43,630 --> 00:18:40,250

time because you're just applying

394

00:18:48,340 --> 00:18:43,640

constant force and the kinetic energy of

395

00:18:51,370 --> 00:18:48,350

the particle eventually is parabolic and

396

00:18:53,230 --> 00:18:51,380

increases faster and so eventually it

397

00:18:55,720 --> 00:18:53,240

exceeds the input energy and there is a

398

00:18:58,450 --> 00:18:55,730

simple demonstration of how conservation

399

00:19:00,730 --> 00:18:58,460

of energy can be broken however if you

400

00:19:03,700 --> 00:19:00,740

look a little more closely at it you can

401  
00:19:07,029 --> 00:19:03,710  
say no new energy is not created because

402  
00:19:09,130 --> 00:19:07,039  
if you replying a constant force to an

403  
00:19:10,990 --> 00:19:09,140  
accelerating object that means that

404  
00:19:13,210 --> 00:19:11,000  
you've got to be pushing harder you've

405  
00:19:15,640 --> 00:19:13,220  
got to put more and more energy into it

406  
00:19:20,080 --> 00:19:15,650  
as the object gets faster and faster so

407  
00:19:22,779 --> 00:19:20,090  
in fact the cumulative energy that you

408  
00:19:26,470 --> 00:19:22,789  
put in increases at the same rate as the

409  
00:19:30,549 --> 00:19:26,480  
kinetic energy of the of the system so

410  
00:19:34,770 --> 00:19:30,559  
we we know these things and yet we make

411  
00:19:39,549 --> 00:19:34,780  
these errors so what can we believe

412  
00:19:46,029 --> 00:19:39,559  
maybe at a future SSC talk I will

413  
00:19:49,630 --> 00:19:46,039

present you the answer to that so in the

414

00:19:52,299 --> 00:19:49,640

meantime what I'd like to do is set up a

415

00:19:54,370 --> 00:19:52,309

lab at the University of Colorado to

416

00:19:57,490 --> 00:19:54,380

look at these things and the idea is to

417

00:20:00,899 --> 00:19:57,500

investigate a small group of select

418

00:20:06,090 --> 00:20:00,909

energy technologies and this would be

419

00:20:08,130 --> 00:20:06,100

run a lot like what my and

420

00:20:10,140 --> 00:20:08,140

my PhD students who've worked on new

421

00:20:12,870 --> 00:20:10,150

energy technologies have done so far and

422

00:20:14,610 --> 00:20:12,880

that is they're advocates for the energy

423

00:20:16,919 --> 00:20:14,620

we're not a debunking lab we're not

424

00:20:19,169 --> 00:20:16,929

trying to disprove something what we're

425

00:20:21,120 --> 00:20:19,179

trying to do is understand it and we dig

426  
00:20:24,450 --> 00:20:21,130  
and we dig and we dig and we look into

427  
00:20:27,360 --> 00:20:24,460  
it very deeply and try to nurture the

428  
00:20:29,640 --> 00:20:27,370  
technologies and understand them if we

429  
00:20:32,190 --> 00:20:29,650  
find it works great if we find it

430  
00:20:33,870 --> 00:20:32,200  
doesn't work so be it and we'll decide

431  
00:20:36,810 --> 00:20:33,880  
it doesn't work and we published the the

432  
00:20:40,590 --> 00:20:36,820  
negative results as well this requires

433  
00:20:42,930 --> 00:20:40,600  
skilled students it this is one really

434  
00:20:44,940 --> 00:20:42,940  
needs to do again I I'm sorry to keep

435  
00:20:47,070 --> 00:20:44,950  
referring to you but the sort of quality

436  
00:20:49,799 --> 00:20:47,080  
work that dr. Violante has done where

437  
00:20:53,909 --> 00:20:49,809  
you just dig and dig until you finally

438  
00:20:55,919 --> 00:20:53,919

get to it and it's clearly going to need

439

00:20:59,909 --> 00:20:55,929

some major donations which I do not have

440

00:21:00,840 --> 00:20:59,919

yet the results will be that we will

441

00:21:03,299 --> 00:21:00,850

know what to believe

442

00:21:05,580 --> 00:21:03,309

and so I can try to answer these

443

00:21:07,890 --> 00:21:05,590

questions too a little better and that

444

00:21:09,930 --> 00:21:07,900

we can develop some problem promising

445

00:21:13,169 --> 00:21:09,940

candidate technologies and actually

446

00:21:15,280 --> 00:21:13,179

produce the excess energy that the world

447

00:21:26,720 --> 00:21:15,290

so much needs thank you

448

00:21:30,239 --> 00:21:29,100

your point your point about we're

449

00:21:32,639 --> 00:21:30,249

inventors go wrong

450

00:21:36,060 --> 00:21:32,649

Bernie Carlson and talking about Tesla

451  
00:21:38,340 --> 00:21:36,070  
when he was in Colorado was that he was

452  
00:21:40,499 --> 00:21:38,350  
too interested in finding confirmations

453  
00:21:42,450 --> 00:21:40,509  
didn't spend enough time looking for dis

454  
00:21:44,609 --> 00:21:42,460  
confirmations that fits the sort of

455  
00:21:47,100 --> 00:21:44,619  
cognitive dissonance thing yes so that

456  
00:21:49,440 --> 00:21:47,110  
if you're really excited about this you

457  
00:21:51,480 --> 00:21:49,450  
want to see something consistent with

458  
00:21:53,580 --> 00:21:51,490  
your expectations so that if you're

459  
00:21:55,019 --> 00:21:53,590  
going to really do the work then yep as

460  
00:21:56,279 --> 00:21:55,029  
you say you don't have to keep going and

461  
00:22:03,509 --> 00:21:56,289  
you have to check for the dis

462  
00:22:08,389 --> 00:22:03,519  
confirmations good yeah nice talk

463  
00:22:13,080 --> 00:22:08,399

I applaud your notion of setting up a

464

00:22:16,200 --> 00:22:13,090

dispassionate scientific laboratory to

465

00:22:18,899 --> 00:22:16,210

look into these emerging technologies

466

00:22:21,359 --> 00:22:18,909

and there is no coordinated way of doing

467

00:22:25,109 --> 00:22:21,369

that right now and I mean some of these

468

00:22:28,350 --> 00:22:25,119

things are clearly true I joke pops

469

00:22:31,379 --> 00:22:28,360

engine Brant it's ridiculous it's

470

00:22:33,899 --> 00:22:31,389

impossible but it did run and therefore

471

00:22:37,440 --> 00:22:33,909

it needs to be investigated further and

472

00:22:39,600 --> 00:22:37,450

when arpa-e was first mooted and they

473

00:22:42,509 --> 00:22:39,610

put out their first call for for

474

00:22:44,279 --> 00:22:42,519

solicitations I submitted a proposal to

475

00:22:46,999 --> 00:22:44,289

do basically that you know set up a

476

00:22:51,779 --> 00:22:47,009

laboratory at a central clearinghouse

477

00:22:55,499 --> 00:22:51,789

for alternative energy projects that's

478

00:22:57,480 --> 00:22:55,509

all right yes all right and seemed to me

479

00:22:59,389 --> 00:22:57,490

a very rational thing to do have a hub

480

00:23:02,279 --> 00:22:59,399

you know have some centralized

481

00:23:06,029 --> 00:23:02,289

instrumentation have established a

482

00:23:09,210 --> 00:23:06,039

discipline a lot of these inventors work

483

00:23:11,369 --> 00:23:09,220

by themselves working by yourself is an

484

00:23:14,519 --> 00:23:11,379

easy way to fall into the error of

485

00:23:17,899 --> 00:23:14,529

systemic effects that you fully

486

00:23:21,779 --> 00:23:17,909

understand so you need adult supervision

487

00:23:24,580 --> 00:23:21,789

yes and seem to be like a great idea so

488

00:23:26,940 --> 00:23:24,590

I submitted the proposal to Harper

489

00:23:31,240 --> 00:23:26,950

round of solicitation it came back

490

00:23:32,919 --> 00:23:31,250

unreviewed right right so although it

491

00:23:35,019 --> 00:23:32,929

seems like a good idea to you and it

492

00:23:37,630 --> 00:23:35,029

seems like a good idea to me it doesn't

493

00:23:39,340 --> 00:23:37,640

seem like a good idea to our masters

494

00:23:42,510 --> 00:23:39,350

this is not going to be funded by the

495

00:23:44,919 --> 00:23:42,520

government this is going to be funded by

496

00:23:53,700 --> 00:23:44,929

private philanthropists who really

497

00:23:59,909 --> 00:23:57,090

our Garrett you mentioned T Henry Morris

498

00:24:02,760 --> 00:23:59,919

worked back in the 1920s and 30s which a

499

00:24:05,310 --> 00:24:02,770

lot of people know about have you

500

00:24:08,730 --> 00:24:05,320

investigated that to any degree to find

501  
00:24:11,940 --> 00:24:08,740  
out if anyone is doing anything on that

502  
00:24:14,730 --> 00:24:11,950  
I understand his son wasn't you know had

503  
00:24:16,380 --> 00:24:14,740  
preserved his papers and research at

504  
00:24:19,049 --> 00:24:16,390  
least but I don't know what has

505  
00:24:21,389 --> 00:24:19,059  
transpired since then or if the son is

506  
00:24:24,990 --> 00:24:21,399  
doing any research or if maybe somebody

507  
00:24:28,680 --> 00:24:25,000  
is working for him he knew elucidate us

508  
00:24:31,169 --> 00:24:28,690  
on the status of that at any degree so I

509  
00:24:32,940 --> 00:24:31,179  
you know I this this lab has not been

510  
00:24:35,370 --> 00:24:32,950  
established I haven't really dug into

511  
00:24:39,180 --> 00:24:35,380  
things more deeply than one simply can

512  
00:24:42,720 --> 00:24:39,190  
by internet searches and so on and yes

513  
00:24:44,669 --> 00:24:42,730

his son is promoting the technology he

514

00:24:49,500 --> 00:24:44,679

as far as I understand he has not done

515

00:24:51,720 --> 00:24:49,510

any experiments and we're sort of

516

00:24:53,940 --> 00:24:51,730

waiting we're waiting for somebody who's

517

00:24:56,279 --> 00:24:53,950

to demonstrate it this is not a hard one

518

00:25:01,860 --> 00:24:56,289

to demonstrate it really is not a hard

519

00:25:14,350 --> 00:25:01,870

one to demonstrate further questions for

520

00:25:25,150 --> 00:25:20,350

thanks a lot for the great work I'm I'm

521

00:25:32,200 --> 00:25:25,160

interested in this very much here in the

522

00:25:35,290 --> 00:25:32,210

Bay Area myself as a proponent I'm I'm

523

00:25:40,210 --> 00:25:35,300

really also concerned with the sort of

524

00:25:42,780 --> 00:25:40,220

overarching sort of feel the great God's

525

00:25:45,940 --> 00:25:42,790

the Overlord the seers of corporate

526

00:25:48,280 --> 00:25:45,950

reality that sort of like like raise

527

00:25:50,260 --> 00:25:48,290

their eyebrows and what I sort of have

528

00:25:53,530 --> 00:25:50,270

their drones listening in if possible

529

00:25:55,930 --> 00:25:53,540

during these you know formative moments

530

00:26:00,040 --> 00:25:55,940

of these interest areas that you like

531

00:26:02,170 --> 00:26:00,050

you're discussing the the role of the

532

00:26:04,030 --> 00:26:02,180

academic world is kind of be interesting

533

00:26:06,550 --> 00:26:04,040

in relation to that is interesting this

534

00:26:09,520 --> 00:26:06,560

is not just a funding thing it turns out

535

00:26:12,430 --> 00:26:09,530

to be a tap a funding tap is kind of

536

00:26:14,290 --> 00:26:12,440

like a you go on water cold water hot

537

00:26:16,150 --> 00:26:14,300

water or no water you know kind of think

538

00:26:19,450 --> 00:26:16,160

that's right how about an applied

539

00:26:21,490 --> 00:26:19,460

drought you know kind of thing so but

540

00:26:24,970 --> 00:26:21,500

I'm also interested in in the other

541

00:26:27,400 --> 00:26:24,980

thing aside from that which is like the

542

00:26:31,090 --> 00:26:27,410

yes or thumbs-up or thumbs-down kind of

543

00:26:32,320 --> 00:26:31,100

thing now that's not a blanket reality

544

00:26:34,270 --> 00:26:32,330

as far as a corporate world because

545

00:26:36,610 --> 00:26:34,280

there's all kinds of like small

546

00:26:38,740 --> 00:26:36,620

competing corporations that feel angry

547

00:26:40,330 --> 00:26:38,750

at the big guys that won't let them play

548

00:26:45,040 --> 00:26:40,340

the game competitively etcetera etcetera

549

00:26:46,960 --> 00:26:45,050

so so how do you kind of approach this

550

00:26:50,890 --> 00:26:46,970

whole thing about like the overarching

551  
00:26:52,780 --> 00:26:50,900  
cloud of the negative orgone of the of

552  
00:26:55,210 --> 00:26:52,790  
the corporate reality in relation to

553  
00:26:59,320 --> 00:26:55,220  
that getting this past just the idea

554  
00:27:01,300 --> 00:26:59,330  
stage it's a very good point and the

555  
00:27:05,470 --> 00:27:01,310  
only way I know to answer is to say I

556  
00:27:07,000 --> 00:27:05,480  
just don't care so I went I I helped

557  
00:27:09,910 --> 00:27:07,010  
organize and went to a conference about

558  
00:27:11,170 --> 00:27:09,920  
nine months ago on new energy was called

559  
00:27:14,380 --> 00:27:11,180  
a breakthrough energy movement to a

560  
00:27:16,990 --> 00:27:14,390  
conference and it was a big conference

561  
00:27:18,340 --> 00:27:17,000  
bigger than this actually and people

562  
00:27:19,600 --> 00:27:18,350  
that there was one point in the

563  
00:27:22,450 --> 00:27:19,610

conference where people actually

564

00:27:24,940 --> 00:27:22,460

applauded me for being there because I

565

00:27:26,530 --> 00:27:24,950

was the only academic who would show his

566

00:27:29,680 --> 00:27:26,540

face at this thing

567

00:27:33,400 --> 00:27:29,690

and so what you're saying is is

568

00:27:35,230 --> 00:27:33,410

absolutely right you know academics you

569

00:27:37,780 --> 00:27:35,240

just you don't go there you don't go

570

00:27:39,640 --> 00:27:37,790

there and at this point I'd say I don't

571

00:27:43,860 --> 00:27:39,650

care I don't care what people think I

572

00:27:53,120 --> 00:27:51,310

it's it's an uphill battle thank you for

573

00:27:56,560 --> 00:27:53,130

your contributions get it

574

00:28:02,380 --> 00:27:56,570

[Applause]