

particle's mass is determined by the string's frequency.

Gravitons are composed of CE strings (containing a very small amount of energy), while photons, quarks, and electrons are composed of OE strings. This means that photons and particles are bound to our 4-D spacetime, but gravitons are not.

Being unbound, gravitons remain in our universe only transiently before disappearing from it, into a fourth spatial dimension hypothesized by M-theory, a unifying string theory.

Thus, string theory accounts for the apparently gigantic difference in strength between the electromagnetic and gravitational forces, gravity being far weaker—most gravitons exit the universe before having any effect on it. Note the implications for thermodynamics—the universe is not a closed system.

1
00:00:04,220 --> 00:00:01,910
experience and in many thousands of

2
00:00:07,010 --> 00:00:04,230
published reports and I could talk to

3
00:00:09,290 --> 00:00:07,020
you for seven or eight hours on the

4
00:00:11,360 --> 00:00:09,300
phenomenon alone but I've picked two

5
00:00:13,490 --> 00:00:11,370
reports that illustrate one principle

6
00:00:15,650 --> 00:00:13,500
that's really critical to what I have to

7
00:00:17,740 --> 00:00:15,660
tell you at the end of the talk these

8
00:00:20,779 --> 00:00:17,750
are reports in the operating room of

9
00:00:23,029 --> 00:00:20,789
people who died on the table and were

10
00:00:25,490 --> 00:00:23,039
resuscitated and then told their stories

11
00:00:28,310 --> 00:00:25,500
later on and the first person says as

12
00:00:31,880 --> 00:00:28,320
they that is the doctors and nurses came

13
00:00:33,470 --> 00:00:31,890

by they wouldn't seem to notice me they

14

00:00:35,540 --> 00:00:33,480

would just keep walking with their eyes

15

00:00:37,100 --> 00:00:35,550

straight ahead and this is the person

16

00:00:39,200 --> 00:00:37,110

who's dissociated from his or her body

17

00:00:42,049 --> 00:00:39,210

and observing what's going on in the

18

00:00:44,000 --> 00:00:42,059

operating room as they came real close I

19

00:00:45,740 --> 00:00:44,010

would try to turn around to get out of

20

00:00:50,779 --> 00:00:45,750

their way but they would just walk

21

00:00:52,270 --> 00:00:50,789

through me hmm okay you're entitled to

22

00:00:55,220 --> 00:00:52,280

say ok these people are psychotic

23

00:00:58,250 --> 00:00:55,230

however I spent my entire master's

24

00:00:59,599 --> 00:00:58,260

thesis showing that they weren't so I'll

25

00:01:02,959 --> 00:00:59,609

mail it to you if you need to read in

26

00:01:05,329 --> 00:01:02,969

the second account I'm trying to stop

27

00:01:07,700 --> 00:01:05,339

them the doctors I really did try to

28

00:01:10,250 --> 00:01:07,710

grab ahold of them and stop them because

29

00:01:14,870 --> 00:01:10,260

I really felt happy where I was which is

30

00:01:16,670 --> 00:01:14,880

dead I actually remember grabbing the

31

00:01:19,100 --> 00:01:16,680

doctor the interviewer asked what

32

00:01:21,499 --> 00:01:19,110

happened the the experimenter says

33

00:01:28,520 --> 00:01:21,509

nothing absolutely nothing it was almost

34

00:01:30,499 --> 00:01:28,530

like he wasn't there well he was there

35

00:01:32,300 --> 00:01:30,509

and so was the experimenter but they were

36

00:01:34,429 --> 00:01:32,310

different somehow aren't they and in

37

00:01:35,990 --> 00:01:34,439

fact there's a superposition of the

38

00:01:39,289 --> 00:01:36,000

experience there over physical bodies

39

00:01:41,149 --> 00:01:39,299

with no interaction so I'm going to have

40

00:01:43,940 --> 00:01:41,159

to accelerate myself way beyond my

41

00:01:46,210 --> 00:01:43,950

normal range consider Einstein's famous

42

00:01:48,980 --> 00:01:46,220

equation with a whole bunch of changes e

43

00:01:53,389 --> 00:01:48,990

equals s sub l seats of the l where l is

44

00:01:55,550 --> 00:01:53,399

an integer zero to whatever s_0 would be

45

00:01:58,190 --> 00:01:55,560

energy itself since these are the 0 is 1

46

00:02:00,740 --> 00:01:58,200

s_1 would be what I'm calling essence

47

00:02:03,050 --> 00:02:00,750

the non materials thinking substance s_2

48

00:02:05,359 --> 00:02:03,060

would be matter this is just for

49

00:02:08,210 --> 00:02:05,369

illustration purposes you can think of a

50

00:02:10,430 --> 00:02:08,220

way to construct a substance from energy

51
00:02:13,450 --> 00:02:10,440
that is not mattered simply by

52
00:02:17,180 --> 00:02:13,460
considering such a simple relationship

53
00:02:19,550 --> 00:02:17,190
so the essence that I call the non

54
00:02:21,530 --> 00:02:19,560
material substance would be constructed

55
00:02:22,970 --> 00:02:21,540
completely differently from energy it

56
00:02:25,100 --> 00:02:22,980
would still be constructed from energy

57
00:02:27,350 --> 00:02:25,110
but differently so differently that it

58
00:02:28,760 --> 00:02:27,360
could overlap with matter and not even

59
00:02:31,670 --> 00:02:28,770
interact with with it except under

60
00:02:34,880 --> 00:02:31,680
certain circumstances Einstein has

61
00:02:36,590 --> 00:02:34,890
helped us understand with his $e = mc^2$

62
00:02:38,870 --> 00:02:36,600
MC squared equation that there could be

63
00:02:40,850 --> 00:02:38,880

other forms of substance but he hasn't

64

00:02:44,990 --> 00:02:40,860

given us any kind of structural advice

65

00:02:47,450 --> 00:02:45,000

so let's turn to Brian Greene and as you

66

00:02:49,760 --> 00:02:47,460

see here string theory comes directly

67

00:02:50,990 --> 00:02:49,770

from Newtonian mechanics because in the

68

00:02:53,840 --> 00:02:51,000

upper left-hand corner we have Newton's

69

00:02:55,370 --> 00:02:53,850

apple and Newton didn't know it at the

70

00:02:59,240 --> 00:02:55,380

time because Apple was composed of many

71

00:03:00,380 --> 00:02:59,250

Apple atoms and each apple Adam has what

72

00:03:02,110 --> 00:03:00,390

we're at once called elementary

73

00:03:04,820 --> 00:03:02,120

particles electrons protons neutrons

74

00:03:07,970 --> 00:03:04,830

those have been shown to consist of

75

00:03:09,530 --> 00:03:07,980

quarks string theory has told us that

76
00:03:12,140 --> 00:03:09,540
the quarks themselves are composed of

77
00:03:14,630 --> 00:03:12,150
strings strings are supposed to be the

78
00:03:16,010 --> 00:03:14,640
fundamental unit of everything and so

79
00:03:18,520 --> 00:03:16,020
string theory is a grand unification

80
00:03:21,320 --> 00:03:18,530
theory in the sense that Einstein wanted

81
00:03:22,880 --> 00:03:21,330
however this is an artist misconception

82
00:03:24,770 --> 00:03:22,890
because material particles are

83
00:03:27,320 --> 00:03:24,780
open-ended strings and what he's shown

84
00:03:30,050 --> 00:03:27,330
here is a closed-ended string so this is

85
00:03:32,960 --> 00:03:30,060
not drawn quite right however we're

86
00:03:36,590 --> 00:03:32,970
going to go ahead what are things in

87
00:03:38,840 --> 00:03:36,600
terms of strings closed loop strings are

88
00:03:41,479 --> 00:03:38,850

one type these are free-floating tiny

89

00:03:42,949 --> 00:03:41,489

vibrating circular strands of energy the

90

00:03:44,960 --> 00:03:42,959

open-ended strings are the other type

91

00:03:48,080 --> 00:03:44,970

these are bound to our sport additional

92

00:03:49,580 --> 00:03:48,090

space-time three physical spatial

93

00:03:52,880 --> 00:03:49,590

dimensions one time to mention a

94

00:03:55,640 --> 00:03:52,890

teach-in so the opening of strings are

95

00:03:59,210 --> 00:03:55,650

actually part of our universe what

96

00:04:00,620 --> 00:03:59,220

string theory claims is that different

97

00:04:01,940 --> 00:04:00,630

amounts of energy are represented by

98

00:04:04,070 --> 00:04:01,950

different vibrational modes of the

99

00:04:07,250 --> 00:04:04,080

strings translating to different masses

100

00:04:10,070 --> 00:04:07,260

of particles gravitons predicted by

101

00:04:13,280 --> 00:04:10,080

relativity are in string theory closed

102

00:04:17,479 --> 00:04:13,290

loop strings that only temporarily stay

103

00:04:20,960 --> 00:04:17,489

in this universe and then leave it so

104

00:04:23,480 --> 00:04:20,970

string theory is meant to account for

105

00:04:25,700 --> 00:04:23,490

the weakness of gravity by saying that

106

00:04:26,940 --> 00:04:25,710

most gravitons never exert any force on

107

00:04:29,190 --> 00:04:26,950

a physical object they leave the

108

00:04:31,530 --> 00:04:29,200

verse first and that's one of the

109

00:04:33,540 --> 00:04:31,540

strengths of string theory but how do we

110

00:04:35,700 --> 00:04:33,550

test it no one's been able to test it I

111

00:04:37,470 --> 00:04:35,710

suggest to you that the near-death

112

00:04:40,200 --> 00:04:37,480

experience represents the test of this

113

00:04:42,870 --> 00:04:40,210

theory that the what I call the essence

114

00:04:45,030 --> 00:04:42,880

The Associated non-material mind is in

115

00:04:47,370 --> 00:04:45,040

fact a closed loop string or maybe more

116

00:04:50,160 --> 00:04:47,380

than one closed loop string that allows

117

00:04:51,600 --> 00:04:50,170

its overlap with matter because the

118

00:04:55,290 --> 00:04:51,610

closed loop string is not attached to

119

00:04:59,370 --> 00:04:55,300

space-time and secondly to be even more

120

00:05:01,410 --> 00:04:59,380

outrageous consciousness is in the

121

00:05:03,150 --> 00:05:01,420

closed loop string although not

122

00:05:05,090 --> 00:05:03,160

necessarily originating from it and

123

00:05:08,010 --> 00:05:05,100

maybe vice versa I suspect and the

124

00:05:09,930 --> 00:05:08,020

closed loop string that is the essence

125

00:05:13,440 --> 00:05:09,940

as i call it the human mind is capable

126

00:05:18,500 --> 00:05:13,450

of leaving the universe and if that's

127

00:05:21,990 --> 00:05:18,510

not renegade enough for you my apologies

128

00:05:24,360 --> 00:05:22,000

therefore i believe that the old ideas

129

00:05:26,940 --> 00:05:24,370

of rene descartes about substance have

130

00:05:28,950 --> 00:05:26,950

been given a new life a new way of

131

00:05:30,900 --> 00:05:28,960

thinking about them at the very least

132

00:05:34,080 --> 00:05:30,910

and a new way of gathering information

133

00:05:36,690 --> 00:05:34,090

by using human experience subjective

134

00:05:38,700 --> 00:05:36,700

experience as scientific data in the

135

00:05:40,650 --> 00:05:38,710

area of consciousness I really don't see

136

00:05:43,410 --> 00:05:40,660

how we can divorce first-person

137

00:05:45,420 --> 00:05:43,420

experience from consciousness and study

138

00:05:49,280 --> 00:05:45,430

consciousness from solely a third person

139

00:05:59,730 --> 00:05:49,290

account so I believe that we have

140

00:06:01,530 --> 00:05:59,740

evidence to think that way thank you we

141

00:06:04,680 --> 00:06:01,540

have a few minutes for questions and

142

00:06:08,000 --> 00:06:04,690

comments and I will exert chairs

143

00:06:10,440 --> 00:06:08,010

privilege just for just a comment that

144

00:06:12,390 --> 00:06:10,450

relying on string theory to give us an

145

00:06:14,340 --> 00:06:12,400

idea of the true nature of physics is

146

00:06:16,550 --> 00:06:14,350

seems to be getting increasingly dodgy

147

00:06:19,350 --> 00:06:16,560

these days to spend despite the best

148

00:06:23,270 --> 00:06:19,360

propaganda efforts of folks like Brian

149

00:06:25,770 --> 00:06:23,280

Greene could let me add one idea to that

150

00:06:28,280 --> 00:06:25,780

Brian Greene taught me indirectly

151

00:06:33,240 --> 00:06:28,290

through television that m-theory

152

00:06:35,430 --> 00:06:33,250

summarizes the five subservient variants

153

00:06:37,710 --> 00:06:35,440

of string theory unifies them and

154

00:06:40,350 --> 00:06:37,720

predicts a fourth spatial dimension so I

155

00:06:42,570 --> 00:06:40,360

believe that my ideas are evidence of

156

00:06:47,100 --> 00:06:42,580

his theory but he was not interested in

157

00:06:52,590 --> 00:06:47,110

that kind of evidence ah i see a

158

00:06:58,020 --> 00:06:55,950

hi Bernie Bernie Williams first I want

159

00:07:00,300 --> 00:06:58,030

to agree with York and then I want agree

160

00:07:03,390 --> 00:07:00,310

with you and then I want to note that a

161

00:07:05,870 --> 00:07:03,400

lot of the inner subjective turn that

162

00:07:08,960 --> 00:07:05,880

we're taking has to do with reviving

163

00:07:11,880 --> 00:07:08,970

ancient traditions like Maria does and

164

00:07:15,810 --> 00:07:11,890

to note that I don't think it's ironic

165

00:07:19,350 --> 00:07:15,820

that we have one and only one remaining

166

00:07:21,720 --> 00:07:19,360

fragment from Lou cheapest now for those

167

00:07:24,990 --> 00:07:21,730

of you who aren't antique Greeks the

168

00:07:29,670 --> 00:07:25,000

cheapest was democritus's teacher the

169

00:07:32,220 --> 00:07:29,680

proposer of atoms all right what is the

170

00:07:40,640 --> 00:07:32,230

one remaining fragment a description of

171

00:07:47,760 --> 00:07:44,690

am assuming I don't have to answer that

172

00:07:50,360 --> 00:07:47,770

comments would be welcome however I'm

173

00:07:53,250 --> 00:07:50,370

not sure I know how to comment on that

174

00:07:55,680 --> 00:07:53,260

why not Costa I'm a neurophysiologist

175

00:07:58,170 --> 00:07:55,690

that does consciousness studies now and

176

00:08:02,100 --> 00:07:58,180

I like exploring altered states and

177

00:08:06,890 --> 00:08:02,110

recording them on the EEG so try this

178

00:08:09,480 --> 00:08:06,900

one on the brain is a quantum mechanical

179

00:08:13,800 --> 00:08:09,490

electrochemical meat machine that

180

00:08:17,340 --> 00:08:13,810

collapses the wave function and then if

181

00:08:18,990 --> 00:08:17,350

you want to get even more confused what

182

00:08:20,790 --> 00:08:19,000

we're all doing here is our brains are

183

00:08:22,950 --> 00:08:20,800

studying our brains and our brains are

184

00:08:25,680 --> 00:08:22,960

studying our consciousness so you can

185

00:08:32,640 --> 00:08:25,690

never get out of the problem of the

186

00:08:34,560 --> 00:08:32,650

brain is part of the the mix I started

187

00:08:36,270 --> 00:08:34,570

going to the consciousness the science

188

00:08:39,719 --> 00:08:36,280

of conscience conferences years ago and

189

00:08:43,170 --> 00:08:39,729

all these debates happened every day and

190

00:08:46,470 --> 00:08:43,180

then different camps were formed the

191

00:08:49,740 --> 00:08:46,480

neuro phenomenologist the nerve net

192

00:08:52,050 --> 00:08:49,750

people the modelers the subjective

193

00:08:55,920 --> 00:08:52,060

experience people you have to look at

194

00:08:57,720 --> 00:08:55,930

the whole gamut so I encourage people to

195

00:09:00,390 --> 00:08:57,730

explore altered states of consciousness

196

00:09:02,060 --> 00:09:00,400

where you can have these experiences of

197

00:09:06,860 --> 00:09:02,070

out-of-body you can

198

00:09:09,690 --> 00:09:06,870

these experiences of your consciousness

199

00:09:12,120 --> 00:09:09,700

moves to different locations you can

200

00:09:15,660 --> 00:09:12,130

have telepathic you will know some of

201

00:09:36,970 --> 00:09:15,670

this thank you for a beautiful

202

00:09:43,100 --> 00:09:41,300

Unicron I wonder if you know that in co

203

00:09:45,820 --> 00:09:43,110

ballistic science there was already

204

00:09:49,940 --> 00:09:45,830

superstring theory in which science

205

00:09:54,500 --> 00:09:49,950

Kabbalistic science no you know you can

206

00:09:56,810 --> 00:09:54,510

read it in red in the book of dr. pol