
Richard M. Russell
Associate Director for Technology, OSTP

1
00:00:08,629 --> 00:00:07,110
good afternoon

2
00:00:10,629 --> 00:00:08,639
welcome to the campus of george

3
00:00:13,350 --> 00:00:10,639
washington university in downtown

4
00:00:15,509 --> 00:00:13,360
washington d.c for what promises to be a

5
00:00:17,590 --> 00:00:15,519
very remarkable afternoon

6
00:00:20,310 --> 00:00:17,600
my name is john logsdon i'm the director

7
00:00:22,710 --> 00:00:20,320
of the space policy institute here at

8
00:00:26,790 --> 00:00:22,720
gw's elliot school of international

9
00:00:29,429 --> 00:00:26,800
affairs we're a very happy co-host along

10
00:00:32,310 --> 00:00:29,439
with lockheed martin and nasa of this

11
00:00:35,430 --> 00:00:32,320
afternoon's lecture by

12
00:00:37,990 --> 00:00:35,440
professor stephen and lucy hawking

13
00:00:40,310 --> 00:00:38,000

which promises to be

14
00:00:42,869 --> 00:00:40,320
something that will be special

15
00:00:45,990 --> 00:00:42,879
professor hawkins has prepared a brand

16
00:00:48,630 --> 00:00:46,000
new lecture this is its first

17
00:00:51,430 --> 00:00:48,640
showing or talking this afternoon and

18
00:00:53,110 --> 00:00:51,440
and i think that's remarkable my job is

19
00:00:56,549 --> 00:00:53,120
to quickly get out of the way by

20
00:00:58,869 --> 00:00:56,559
introducing uh for a formal welcome the

21
00:01:01,189 --> 00:00:58,879
16th president of george washington

22
00:01:08,630 --> 00:01:01,199
university dr steven knapp

23
00:01:13,190 --> 00:01:10,710
thank you very much professor logsdon on

24
00:01:14,550 --> 00:01:13,200
behalf of the board of trustees and the

25
00:01:16,630 --> 00:01:14,560
faculty of the george washington

26
00:01:18,149 --> 00:01:16,640
university it's a pleasure to welcome

27
00:01:20,630 --> 00:01:18,159
you all this afternoon to the third

28
00:01:23,030 --> 00:01:20,640
lecture in a series celebrating the 50th

29
00:01:25,830 --> 00:01:23,040
anniversary of nasa i'd like to thank

30
00:01:27,270 --> 00:01:25,840
the events sponsors lockheed martin and

31
00:01:29,910 --> 00:01:27,280
nasa for choosing the george washington

32
00:01:32,789 --> 00:01:29,920
university as a venue for this important

33
00:01:35,510 --> 00:01:32,799
event and i'd particularly like to uh

34
00:01:37,990 --> 00:01:35,520
acknowledge the presence here of shannon

35
00:01:39,510 --> 00:01:38,000
dale who is the deputy administrator of

36
00:01:40,710 --> 00:01:39,520
nasa who's here with us today and it's a

37
00:01:43,590 --> 00:01:40,720
pleasure to be sitting here also with

38
00:01:46,550 --> 00:01:43,600

lucy hawking in the front of the theater

39
00:01:47,990 --> 00:01:46,560
time does not permit me to acknowledge

40
00:01:49,910 --> 00:01:48,000
all the distinguished members of today's

41
00:01:51,510 --> 00:01:49,920
audience but you are all welcome for

42
00:01:53,190 --> 00:01:51,520
what i know will be a very exciting and

43
00:01:56,230 --> 00:01:53,200
stimulating lecture

44
00:01:58,550 --> 00:01:56,240
gw has worked closely with nasa for most

45
00:02:00,149 --> 00:01:58,560
of the agency's existence

46
00:02:01,670 --> 00:02:00,159
nasa's second administrator in fact

47
00:02:04,149 --> 00:02:01,680
james e webb

48
00:02:05,910 --> 00:02:04,159
studied law at gw in the 1930s and was a

49
00:02:08,550 --> 00:02:05,920
member of the gw board of trustees from

50
00:02:10,550 --> 00:02:08,560
1951 to 1963

51
00:02:13,030 --> 00:02:10,560
as nasa administrator

52
00:02:15,350 --> 00:02:13,040
webb in 1964 asked gw to turn its

53
00:02:17,670 --> 00:02:15,360
attention to the policy implications of

54
00:02:20,630 --> 00:02:17,680
the u.s space program and for the more

55
00:02:23,350 --> 00:02:20,640
than 40 years since then gw has made

56
00:02:25,910 --> 00:02:23,360
space policy a focus of its research and

57
00:02:27,750 --> 00:02:25,920
its graduate education efforts

58
00:02:30,630 --> 00:02:27,760
we established the space policy

59
00:02:32,630 --> 00:02:30,640
institute in 1987 as part of the elliott

60
00:02:34,550 --> 00:02:32,640
school of international affairs and that

61
00:02:37,190 --> 00:02:34,560
institute has become the leading center

62
00:02:38,790 --> 00:02:37,200
of space policy studies in the world

63
00:02:41,190 --> 00:02:38,800

much of the institute's research and

64
00:02:43,750 --> 00:02:41,200
outreach activities has been supported

65
00:02:45,509 --> 00:02:43,760
by nasa grants and contracts and we

66
00:02:48,070 --> 00:02:45,519
appreciate nasa's confidence in the

67
00:02:50,070 --> 00:02:48,080
quality of the space institute's work we

68
00:02:51,990 --> 00:02:50,080
also appreciate the continuing support

69
00:02:54,309 --> 00:02:52,000
that lockheed martin has provided to the

70
00:02:55,589 --> 00:02:54,319
space policy institute from its very

71
00:02:58,149 --> 00:02:55,599
inception

72
00:03:00,229 --> 00:02:58,159
the institute's focus on space policy is

73
00:03:02,149 --> 00:03:00,239
typical of the innovative character of

74
00:03:04,309 --> 00:03:02,159
gw's elliott school of international

75
00:03:05,750 --> 00:03:04,319
affairs one of the nation's leading

76
00:03:07,910 --> 00:03:05,760
schools of international affairs the

77
00:03:09,830 --> 00:03:07,920
elliott school seeks to create knowledge

78
00:03:12,550 --> 00:03:09,840
share wisdom and inspire action to

79
00:03:14,790 --> 00:03:12,560
address global challenges

80
00:03:17,670 --> 00:03:14,800
my role is not to introduce professor

81
00:03:19,910 --> 00:03:17,680
hawking that honor falls to ambassador

82
00:03:21,910 --> 00:03:19,920
richard m russell associate director of

83
00:03:24,149 --> 00:03:21,920
the office of science and technology

84
00:03:25,990 --> 00:03:24,159
policy in the executive office of the

85
00:03:28,630 --> 00:03:26,000
president i will note only that

86
00:03:30,630 --> 00:03:28,640
professor hawking's pioneering mind is

87
00:03:33,589 --> 00:03:30,640
one of the greatest of our era and that

88
00:03:35,509 --> 00:03:33,599

he has combined profound insights

89
00:03:37,589 --> 00:03:35,519
into the nature of the universe with an

90
00:03:40,390 --> 00:03:37,599
admirable commitment to making those

91
00:03:42,070 --> 00:03:40,400
insights available to the general public

92
00:03:44,070 --> 00:03:42,080
it is a privilege as well as an honor to

93
00:03:45,830 --> 00:03:44,080
have him on our campus

94
00:03:47,750 --> 00:03:45,840
it's now my pleasure to introduce

95
00:03:50,869 --> 00:03:47,760
ambassador russell who serves both as

96
00:03:53,270 --> 00:03:50,879
associate director of the ostp and as

97
00:03:54,789 --> 00:03:53,280
deputy director for technology mr

98
00:03:57,589 --> 00:03:54,799
russell was nominated by the president

99
00:03:59,350 --> 00:03:57,599
confirmed by the senate in august 2002

100
00:04:02,630 --> 00:03:59,360
he served as president bush's ambassador

101
00:04:03,750 --> 00:04:02,640
to the 2007 world radio communication

102
00:04:06,309 --> 00:04:03,760
conference

103
00:04:09,350 --> 00:04:06,319
he first joined ostp as chief of staff

104
00:04:11,509 --> 00:04:09,360
in 2001 following a decade of service on

105
00:04:13,910 --> 00:04:11,519
capitol hill where he worked on science

106
00:04:23,749 --> 00:04:13,920
and technology issues in both houses of

107
00:04:27,510 --> 00:04:25,430
thank you dr knapp

108
00:04:29,749 --> 00:04:27,520
it is truly an honor and a pleasure to

109
00:04:31,909 --> 00:04:29,759
introduce the speakers for the third in

110
00:04:35,430 --> 00:04:31,919
the series of nasa lectures that

111
00:04:37,749 --> 00:04:35,440
celebrates nasa's 50th anniversary year

112
00:04:39,670 --> 00:04:37,759
these lectures are a unique opportunity

113
00:04:41,350 --> 00:04:39,680

opportunity for prominent leaders to

114
00:04:42,950 --> 00:04:41,360
address matters of global interest in

115
00:04:45,270 --> 00:04:42,960
the areas of space

116
00:04:48,629 --> 00:04:45,280
exploration scientific discovery

117
00:04:50,390 --> 00:04:48,639
aeronautics research to audiences of key

118
00:04:52,469 --> 00:04:50,400
policy makers

119
00:04:53,830 --> 00:04:52,479
corporate leaders academics and the

120
00:04:55,590 --> 00:04:53,840
public sector

121
00:04:57,830 --> 00:04:55,600
i would also like to acknowledge shannon

122
00:05:00,390 --> 00:04:57,840
dale the deputy administrator of nasa

123
00:05:02,230 --> 00:05:00,400
for establishing this series and

124
00:05:04,950 --> 00:05:02,240
it really is going to be a treat this

125
00:05:06,790 --> 00:05:04,960
afternoon to listen to professor hawking

126
00:05:09,110 --> 00:05:06,800
and lucy hawking

127
00:05:11,909 --> 00:05:09,120
today we have a unique father-daughter

128
00:05:13,749 --> 00:05:11,919
pair with us not much to me needs to be

129
00:05:15,790 --> 00:05:13,759
said about professor stephen hawking who

130
00:05:19,189 --> 00:05:15,800
is one of the world's foremost

131
00:05:21,990 --> 00:05:19,199
cosmologists and astrophysicists

132
00:05:24,310 --> 00:05:22,000
since 1979 he has been the lucian

133
00:05:25,670 --> 00:05:24,320
professor of mathematics at cambridge

134
00:05:28,629 --> 00:05:25,680
university

135
00:05:30,150 --> 00:05:28,639
a seat once held by sir isaac newton

136
00:05:32,230 --> 00:05:30,160
i'm actually a stand-in for the

137
00:05:34,390 --> 00:05:32,240
president's science advisor dr john

138
00:05:36,230 --> 00:05:34,400

marburger who unfortunately has the flu

139
00:05:38,870 --> 00:05:36,240
today but he wanted me to recount a

140
00:05:41,350 --> 00:05:38,880
story to you about how important

141
00:05:43,990 --> 00:05:41,360
professor hawking's work is in terms of

142
00:05:45,990 --> 00:05:44,000
being able to translate science

143
00:05:47,029 --> 00:05:46,000
into something that's understandable for

144
00:05:49,110 --> 00:05:47,039
the public

145
00:05:51,430 --> 00:05:49,120
dr marberger used to be the head of the

146
00:05:52,550 --> 00:05:51,440
brookhaven national laboratory and while

147
00:05:54,629 --> 00:05:52,560
he was there

148
00:05:57,430 --> 00:05:54,639
they attempted to start up the

149
00:05:58,790 --> 00:05:57,440
relativistic heavy ion collider also

150
00:06:01,029 --> 00:05:58,800
known as rick

151
00:06:01,749 --> 00:06:01,039
that caused a lawsuit there was a claim

152
00:06:03,990 --> 00:06:01,759
that

153
00:06:05,189 --> 00:06:04,000
if rick was turned on we would create a

154
00:06:07,830 --> 00:06:05,199
black hole

155
00:06:09,350 --> 00:06:07,840
and it would eat the world

156
00:06:10,790 --> 00:06:09,360
now that may sound funny but

157
00:06:12,469 --> 00:06:10,800
unfortunately the public actually

158
00:06:15,749 --> 00:06:12,479
believed that a black hole might be

159
00:06:18,390 --> 00:06:15,759
created and

160
00:06:20,390 --> 00:06:18,400
professor and at that point director of

161
00:06:23,029 --> 00:06:20,400
the national laboratory marberger

162
00:06:25,270 --> 00:06:23,039
turned to professor hawking

163
00:06:27,990 --> 00:06:25,280

and asked for advice and asked for him

164
00:06:30,550 --> 00:06:28,000
to give advice to the press and it is

165
00:06:32,230 --> 00:06:30,560
because of his advice that we should not

166
00:06:34,469 --> 00:06:32,240
worry about being consumed by a black

167
00:06:36,469 --> 00:06:34,479
hole if the collider was turned on that

168
00:06:38,710 --> 00:06:36,479
it allowed brookhaven to move forward

169
00:06:41,350 --> 00:06:38,720
with the collider so dr marburger wanted

170
00:06:43,830 --> 00:06:41,360
to both express his sadness and not

171
00:06:45,670 --> 00:06:43,840
being here today but also his

172
00:06:47,670 --> 00:06:45,680
pleasure and thanks for the wonderful

173
00:06:50,550 --> 00:06:47,680
work that professor hawkins has done not

174
00:06:52,790 --> 00:06:50,560
only in terms of

175
00:06:54,550 --> 00:06:52,800
understanding of physics but also in

176
00:06:57,270 --> 00:06:54,560
terms of being able to write relate to

177
00:06:59,270 --> 00:06:57,280
the general public directly and

178
00:07:01,110 --> 00:06:59,280
move science forward

179
00:07:03,029 --> 00:07:01,120
professor hawking's lecture

180
00:07:04,870 --> 00:07:03,039
which is titled why we should go into

181
00:07:07,589 --> 00:07:04,880
space was written especially for this

182
00:07:10,309 --> 00:07:07,599
event and he considers it a 50th

183
00:07:12,390 --> 00:07:10,319
birthday present for nasa and quite a

184
00:07:14,309 --> 00:07:12,400
birthday present i'm sure it will be

185
00:07:15,990 --> 00:07:14,319
his daughter lucy is a journalist and

186
00:07:17,909 --> 00:07:16,000
author lucy and her father have

187
00:07:19,830 --> 00:07:17,919
co-authored a book for children called

188
00:07:22,070 --> 00:07:19,840

george's secret key to the universe

189
00:07:23,749 --> 00:07:22,080
which was published in october and

190
00:07:25,909 --> 00:07:23,759
there's a second book on the way

191
00:07:28,870 --> 00:07:25,919
professor hawking will initially speak

192
00:07:30,790 --> 00:07:28,880
for a few minutes followed by lucy and

193
00:07:31,749 --> 00:07:30,800
then professor hawking will complete his

194
00:07:33,909 --> 00:07:31,759
lecture

195
00:07:35,909 --> 00:07:33,919
and with that i would like to

196
00:08:08,950 --> 00:07:35,919
introduce and welcome professor hawking

197
00:08:08,960 --> 00:08:15,510
can you hear me

198
00:08:21,029 --> 00:08:18,629
why should we go into space

199
00:08:23,510 --> 00:08:21,039
what is the justification for spending

200
00:08:26,309 --> 00:08:23,520
all that effort and money on getting a

201
00:08:29,990 --> 00:08:26,319
few lumps of moon rock

202
00:08:32,870 --> 00:08:30,000
aren't there better causes here on earth

203
00:08:36,630 --> 00:08:32,880
in a way the situation is like that in

204
00:08:38,709 --> 00:08:36,640
europe before 1492.

205
00:08:41,670 --> 00:08:38,719
people might well have argued that it

206
00:08:44,310 --> 00:08:41,680
was a waste of money to send columbus on

207
00:08:47,110 --> 00:08:44,320
a wild goose chase

208
00:08:50,550 --> 00:08:47,120
yet the discovery of the new world made

209
00:08:53,430 --> 00:08:50,560
a profound difference to the old

210
00:08:56,790 --> 00:08:53,440
just think we wouldn't have had a big

211
00:08:59,430 --> 00:08:56,800
mac or kfc

212
00:09:02,070 --> 00:08:59,440
spreading out into space will have an

213
00:09:04,550 --> 00:09:02,080

even greater effect

214
00:09:07,110 --> 00:09:04,560
it will completely change the future of

215
00:09:10,710 --> 00:09:07,120
the human race and maybe determine

216
00:09:13,030 --> 00:09:10,720
whether we have any future at all

217
00:09:15,590 --> 00:09:13,040
it won't solve any of our immediate

218
00:09:18,310 --> 00:09:15,600
problems on planet earth but it will

219
00:09:20,630 --> 00:09:18,320
give us a new perspective on them and

220
00:09:22,550 --> 00:09:20,640
cause us to look outwards rather than

221
00:09:25,269 --> 00:09:22,560
adwords

222
00:09:26,949 --> 00:09:25,279
hopefully it would unite us to face a

223
00:09:29,750 --> 00:09:26,959
common challenge

224
00:09:33,190 --> 00:09:29,760
this would be a long-term strategy and