



1  
00:00:19,960 --> 00:00:16,609  
why did you want to be an astronaut in

2  
00:00:22,760 --> 00:00:19,970  
reality I never took the decision to

3  
00:00:25,690 --> 00:00:22,770  
become an astronaut it just happened and

4  
00:00:29,269 --> 00:00:25,700  
the way it happened was a coincidence

5  
00:00:31,939 --> 00:00:29,279  
obviously since I was a child I always

6  
00:00:35,479 --> 00:00:31,949  
was thinking with great interest about

7  
00:00:39,009 --> 00:00:35,489  
flying aircraft or flying space but I

8  
00:00:43,610 --> 00:00:39,019  
never thought was going to be any

9  
00:00:46,039 --> 00:00:43,620  
possible one day the way for me the

10  
00:00:49,759 --> 00:00:46,049  
opportunity arrived was through the

11  
00:00:53,840 --> 00:00:49,769  
Italian Air Force in fact I I went to

12  
00:00:57,109 --> 00:00:53,850  
the Academy I became pilot here in the

13  
00:00:59,810 --> 00:00:57,119

US research Force Base Lubbock Texas now

14

00:01:04,579 --> 00:00:59,820

the base is closed there was the year 89

15

00:01:08,060 --> 00:01:04,589

and then I came back in 95 at Patuxent

16

00:01:10,160 --> 00:01:08,070

River for the test pilot school and at

17

00:01:12,170 --> 00:01:10,170

the end of the test pilot school it is

18

00:01:15,109 --> 00:01:12,180

tradition that the school takes it to at

19

00:01:19,160 --> 00:01:15,119

NASA and I was with them and I remember

20

00:01:23,390 --> 00:01:19,170

coming here with my class my TPS class

21

00:01:25,280 --> 00:01:23,400

and all my colleagues American

22

00:01:27,500 --> 00:01:25,290

colleagues were thinking about becoming

23

00:01:31,700 --> 00:01:27,510

an astronaut and I was thinking bad luck

24

00:01:34,880 --> 00:01:31,710

that we are not us obviously in Italy is

25

00:01:37,730 --> 00:01:34,890

not that easy to have opportunities for

26

00:01:42,260 --> 00:01:37,740

astronauts so differently from the US

27

00:01:44,180 --> 00:01:42,270

were every other year or routinely you

28

00:01:46,910 --> 00:01:44,190

have a new class of astronauts for us is

29

00:01:49,940 --> 00:01:46,920

kind of very rare unique opportunity I

30

00:01:52,910 --> 00:01:49,950

never thought that that opportunity

31

00:01:57,649 --> 00:01:52,920

would have been available to me then I

32

00:02:00,680 --> 00:01:57,659

went back after my TPS test pilot school

33

00:02:02,450 --> 00:02:00,690

I went back to Italy in the two years

34

00:02:05,570 --> 00:02:02,460

later here it is the Italian space

35

00:02:09,080 --> 00:02:05,580

agency was looking for two astronauts I

36

00:02:11,410 --> 00:02:09,090

applied and I got selected together with

37

00:02:14,809 --> 00:02:11,420

my friend and colleague paolo nespoli

38

00:02:16,910 --> 00:02:14,819

only take you back to your childhood

39

00:02:19,250 --> 00:02:16,920

tell me about your hometown and what it

40

00:02:21,559 --> 00:02:19,260

was like for you growing up you need I

41

00:02:26,270 --> 00:02:21,569

grew up in a very small town

42

00:02:31,190 --> 00:02:26,280

very small the name is Bo martha boo

43

00:02:37,129 --> 00:02:31,200

Martha in his original originally the

44

00:02:40,179 --> 00:02:37,139

name meant city of Mars very small in

45

00:02:43,220 --> 00:02:40,189

the middle of a beautiful forest

46

00:02:47,659 --> 00:02:43,230

countryside and I grew up playing soccer

47

00:02:52,429 --> 00:02:47,669

outside my my school I was very good in

48

00:02:54,830 --> 00:02:52,439

defense and and there was a and and then

49

00:02:59,209 --> 00:02:54,840

I was I loved playing the boots meet

50

00:03:05,929 --> 00:02:59,219

with my friends and that has been my my

51  
00:03:09,830 --> 00:03:05,939  
childhood then when I I reached the age

52  
00:03:13,069 --> 00:03:09,840  
of the decision after after my I school

53  
00:03:17,379 --> 00:03:13,079  
I decided to to start to study physics

54  
00:03:23,409 --> 00:03:17,389  
so i left my small town and that remains

55  
00:03:28,189 --> 00:03:23,419  
every time in my in my thoughts and my

56  
00:03:32,869 --> 00:03:28,199  
parents still live there and as a

57  
00:03:35,839 --> 00:03:32,879  
coincidence there is a very in the

58  
00:03:38,839 --> 00:03:35,849  
italian cities especially those small

59  
00:03:42,349 --> 00:03:38,849  
seed is there is a tradition there is

60  
00:03:45,229 --> 00:03:42,359  
one special day that is the festivity of

61  
00:03:47,990 --> 00:03:45,239  
the city and that special day is the

62  
00:03:51,319 --> 00:03:48,000  
24th of april my first spaceflight I

63  
00:03:54,949 --> 00:03:51,329

flaw in April exactly around the 24th

64

00:03:58,249 --> 00:03:54,959

saw the second apparently I will fly in

65

00:04:00,800 --> 00:03:58,259

April also for sts-134 and that

66

00:04:03,409 --> 00:04:00,810

obviously keep me very much linked with

67

00:04:06,589 --> 00:04:03,419

my origins did you get a chance to see

68

00:04:12,379 --> 00:04:06,599

it from space on your previous wine that

69

00:04:17,620 --> 00:04:12,389

is a good question because they my city

70

00:04:20,959 --> 00:04:17,630

my source mall that is impossible to

71

00:04:23,659 --> 00:04:20,969

clearly identify it I was able to

72

00:04:27,140 --> 00:04:23,669

identify other geographical contour and

73

00:04:30,950 --> 00:04:27,150

take a picture in the middle hoping to

74

00:04:34,279 --> 00:04:30,960

get my small village in it unfortunately

75

00:04:35,390 --> 00:04:34,289

the clouds didn't succeed so i will get

76

00:04:38,060 --> 00:04:35,400

another try this

77

00:04:40,939 --> 00:04:38,070

I do you have a feeling that that place

78

00:04:42,640 --> 00:04:40,949

and those people they're hip helped make

79

00:04:48,310 --> 00:04:42,650

you the person that you are today I

80

00:04:53,029 --> 00:04:48,320

spent 18 years in that little town and

81

00:04:57,200 --> 00:04:53,039

obviously I bring with me many lesson

82

00:05:00,230 --> 00:04:57,210

learned from my childhood playing in the

83

00:05:05,080 --> 00:05:00,240

woods staying in the middle of the

84

00:05:11,810 --> 00:05:05,090

nature in the something that I believe I

85

00:05:15,080 --> 00:05:11,820

brought with me in space is to assess

86

00:05:19,400 --> 00:05:15,090

this very strange sensation in comparing

87

00:05:23,890 --> 00:05:19,410

technology with nature in judging or

88

00:05:26,839 --> 00:05:23,900

pondering the future with the past and

89

00:05:30,890 --> 00:05:26,849

obviously to start from a small village

90

00:05:34,909 --> 00:05:30,900

in the go for this very special part

91

00:05:37,850 --> 00:05:34,919

that got me through the Italian Air

92

00:05:39,920 --> 00:05:37,860

Force to become a pilot and then a test

93

00:05:43,100 --> 00:05:39,930

pilot and then the Italian space agency

94

00:05:45,439 --> 00:05:43,110

European Space Agency and astronaut to

95

00:05:47,689 --> 00:05:45,449

fly to the International Space Station

96

00:05:51,469 --> 00:05:47,699

to have an opportunity to see the earth

97

00:05:53,870 --> 00:05:51,479

from space and then to learn to go back

98

00:05:56,750 --> 00:05:53,880

to go back to the small village to go

99

00:06:00,670 --> 00:05:56,760

back to the region obviously all this is

100

00:06:05,480 --> 00:06:00,680

making to fill you a very strong

101

00:06:08,089 --> 00:06:05,490

motivation to continue to look for the

102

00:06:13,070 --> 00:06:08,099

future to build the future for for

103

00:06:17,120 --> 00:06:13,080

myself for my children for all of us but

104

00:06:21,980 --> 00:06:17,130

also a very strong feeling and sensation

105

00:06:24,800 --> 00:06:21,990

of the importance of who we are and all

106

00:06:30,439 --> 00:06:24,810

the little things that are around us and

107

00:06:36,290 --> 00:06:30,449

some time we don't properly evaluate so

108

00:06:40,129 --> 00:06:36,300

I I will continue to work for for the

109

00:06:44,570 --> 00:06:40,139

future bringing and taking with me every

110

00:06:47,540 --> 00:06:44,580

time my my roots and my origins the part

111

00:06:49,050 --> 00:06:47,550

of your job that you're Baptist to take

112

00:06:51,900 --> 00:06:49,060

on the flying in space

113

00:06:54,420 --> 00:06:51,910

of being an astronaut is a part that we

114

00:06:56,340 --> 00:06:54,430

know can be dangerous so Roberto I'm

115

00:06:58,680 --> 00:06:56,350

interested to know what is it that you

116

00:07:01,860 --> 00:06:58,690

think that we get or what do we learn as

117

00:07:05,310 --> 00:07:01,870

a result applying people in space that

118

00:07:08,730 --> 00:07:05,320

makes it worth taking that risk risk is

119

00:07:12,600 --> 00:07:08,740

a is a link the word risk with

120

00:07:16,020 --> 00:07:12,610

probability there is a probability of

121

00:07:20,760 --> 00:07:16,030

something that could go wrong anything

122

00:07:22,890 --> 00:07:20,770

that you do in life so I I do not

123

00:07:24,930 --> 00:07:22,900

necessarily concentrate on the risk

124

00:07:28,050 --> 00:07:24,940

associated with spaceflight especially

125

00:07:32,659 --> 00:07:28,060

because living with NASA working with

126

00:07:38,210 --> 00:07:32,669

NASA I see that the there is a

127

00:07:44,250 --> 00:07:38,220

systematic approach to protect the

128

00:07:47,730 --> 00:07:44,260

safety of space flights and i i i would

129

00:07:50,340 --> 00:07:47,740

consider how inclined to consider this

130

00:07:54,450 --> 00:07:50,350

incredible effort of the nasa community

131

00:07:57,180 --> 00:07:54,460

as reducing the risk associated with

132

00:08:01,380 --> 00:07:57,190

space flight to the minimum possible so

133

00:08:03,659 --> 00:08:01,390

I feel perfectly at ease in getting

134

00:08:06,300 --> 00:08:03,669

ready to climb on the on the rocket of

135

00:08:12,650 --> 00:08:06,310

the shuttle and fly to the International

136

00:08:18,150 --> 00:08:15,090

Roberta you're a member of the shuttle

137

00:08:20,040 --> 00:08:18,160

mission sts-134 crew could you summarize

138

00:08:22,230 --> 00:08:20,050

the overall goals of your flight and

139

00:08:24,990 --> 00:08:22,240

tell me what your main responsibilities

140

00:08:28,680 --> 00:08:25,000

are going to be 134 is almost

141

00:08:33,560 --> 00:08:28,690

unbelievable today to realize that I am

142

00:08:36,300 --> 00:08:33,570

here ready to fly on sts-134 in fact

143

00:08:40,529 --> 00:08:36,310

there is a long story behind my

144

00:08:44,640 --> 00:08:40,539

assignment that goes back with my in my

145

00:08:47,700 --> 00:08:44,650

region I was initially student I was

146

00:08:50,390 --> 00:08:47,710

trying to get a major in physics and

147

00:08:54,300 --> 00:08:50,400

then at a certain point I switched my

148

00:08:55,980 --> 00:08:54,310

pad and they went and became a pilot and

149

00:08:58,830 --> 00:08:55,990

the new test pilot with the Dragon Air

150

00:09:02,310 --> 00:08:58,840

Force but my passion for physics

151

00:09:05,220 --> 00:09:02,320

continue all along and soon after I

152

00:09:08,610 --> 00:09:05,230

achieved my degree as a test pilot I

153

00:09:12,080 --> 00:09:08,620

went back and complete my degree at the

154

00:09:17,040 --> 00:09:12,090

University that was in perugia and I

155

00:09:20,880 --> 00:09:17,050

finished my studies and ironically my

156

00:09:23,220 --> 00:09:20,890

teacher was a professor Battistone that

157

00:09:28,140 --> 00:09:23,230

is the deputy chief of the ims

158

00:09:31,380 --> 00:09:28,150

experiment so after this long career Air

159

00:09:34,590 --> 00:09:31,390

Force and then NASA I started with

160

00:09:36,570 --> 00:09:34,600

nothing 98 I find myself on possibly

161

00:09:38,870 --> 00:09:36,580

what could be the last flight and with

162

00:09:44,280 --> 00:09:38,880

onboard the Alpha Magnetic Spectrometer

163

00:09:48,120 --> 00:09:44,290

that is the merging of my passions

164

00:09:52,590 --> 00:09:48,130

physics and flying aircraft are

165

00:09:55,130 --> 00:09:52,600

flying in space and in this case you're

166

00:09:57,690 --> 00:09:55,140

going to the space station with this

167

00:09:59,430 --> 00:09:57,700

european hardware you're even going to

168

00:10:01,890 --> 00:09:59,440

arrive at the station and find a fellow

169

00:10:04,100 --> 00:10:01,900

european astronaut to fellow countryman

170

00:10:06,090 --> 00:10:04,110

paolo nespoli who's going to be there

171

00:10:07,740 --> 00:10:06,100

you have any thoughts about the

172

00:10:09,750 --> 00:10:07,750

significance of having two

173

00:10:11,790 --> 00:10:09,760

representatives of the European and

174

00:10:14,970 --> 00:10:11,800

Italian space agency with paul i have

175

00:10:17,280 --> 00:10:14,980

another very peculiar and special

176  
00:10:20,460 --> 00:10:17,290  
coincidence we started in fact together

177  
00:10:23,010 --> 00:10:20,470  
in 98 and between the two of us every

178  
00:10:25,170 --> 00:10:23,020  
time there was a competition obviously

179  
00:10:25,890 --> 00:10:25,180  
were in the same class but Italians but

180  
00:10:31,740 --> 00:10:25,900  
on the central

181  
00:10:35,100 --> 00:10:31,750  
back so the wedding's went I soon after

182  
00:10:37,980 --> 00:10:35,110  
completed my NASA training I went and

183  
00:10:40,860 --> 00:10:37,990  
the opportunity to fly in Russia there

184  
00:10:44,580 --> 00:10:40,870  
was 2002 and then a second time in

185  
00:10:46,860 --> 00:10:44,590  
Russian 2005 power instead at the

186  
00:10:49,650 --> 00:10:46,870  
privilege to fly with the shuttle on

187  
00:10:52,800 --> 00:10:49,660  
sts-1 to any and the year we are switch

188  
00:10:55,500 --> 00:10:52,810

inside now Paolo as we speak is in

189

00:10:59,280 --> 00:10:55,510

Russia ready to launch on the forest

190

00:11:03,180 --> 00:10:59,290

expedition and here i am in line to fly

191

00:11:04,940 --> 00:11:03,190

on sts-1 24 and we'll meet in space that

192

00:11:07,860 --> 00:11:04,950

is unique it's a beautiful opportunity

193

00:11:10,080 --> 00:11:07,870

we started together and we converge

194

00:11:12,540 --> 00:11:10,090

together on board of the station and I

195

00:11:14,190 --> 00:11:12,550

probably shows the maturity of the

196

00:11:16,130 --> 00:11:14,200

european space program then i'll have

197

00:11:19,410 --> 00:11:16,140

two astronauts in space together

198

00:11:21,270 --> 00:11:19,420

obviously the other situation that the

199

00:11:24,810 --> 00:11:21,280

light when the line is back in 98 when I

200

00:11:27,630 --> 00:11:24,820

got selected was also the year that the

201  
00:11:29,900 --> 00:11:27,640  
European astronaut court was born at

202  
00:11:32,640 --> 00:11:29,910  
that time where if i recall correctly 16

203  
00:11:34,920 --> 00:11:32,650  
many different nationalities we have

204  
00:11:37,010 --> 00:11:34,930  
been working together now we have a six

205  
00:11:40,110 --> 00:11:37,020  
units turnouts in the new class and

206  
00:11:43,890 --> 00:11:40,120  
obviously to have the opportunity for

207  
00:11:46,770 --> 00:11:43,900  
the year 2011 to have two european

208  
00:11:49,460 --> 00:11:46,780  
astronaut but of italian nationality is

209  
00:11:52,200 --> 00:11:49,470  
something that for sure make me proud

210  
00:11:53,400 --> 00:11:52,210  
one of the most important experiments is

211  
00:11:55,740 --> 00:11:53,410  
being delivered to the space station

212  
00:11:57,780 --> 00:11:55,750  
certainly on your flight is the alpha

213  
00:12:00,540 --> 00:11:57,790

magnetic spectrometer which you refer to

214

00:12:03,630 --> 00:12:00,550

a minute ago let me get you to fill that

215

00:12:06,600 --> 00:12:03,640

Ian forest tell me about the AMS and

216

00:12:10,380 --> 00:12:06,610

what it does in space Alpha Magnetic

217

00:12:14,190 --> 00:12:10,390

Spectrometer for me is obviously as it

218

00:12:16,890 --> 00:12:14,200

very specific importance with my role in

219

00:12:20,190 --> 00:12:16,900

space i will be our one that means that

220

00:12:23,010 --> 00:12:20,200

i will have the responsibility with the

221

00:12:27,830 --> 00:12:23,020

shuttle robotic arm to take it from the

222

00:12:31,260 --> 00:12:27,840

payload bay and offer to the station but

223

00:12:34,440 --> 00:12:31,270

behind that specific operational tasks

224

00:12:37,620 --> 00:12:34,450

there is a very long history i started

225

00:12:39,600 --> 00:12:37,630

the studying physics not only that my

226

00:12:42,180 --> 00:12:39,610

interest was antimatter

227

00:12:45,000 --> 00:12:42,190

antimatter is something very special

228

00:12:47,370 --> 00:12:45,010

when matter and antimatter meet with

229

00:12:49,860 --> 00:12:47,380

each other they know each other and they

230

00:12:53,759 --> 00:12:49,870

create a huge amount of energy one of

231

00:12:56,250 --> 00:12:53,769

the most most deep secret of the

232

00:12:59,040 --> 00:12:56,260

universe is why in our universe we see

233

00:13:02,639 --> 00:12:59,050

matter and not antimatter with this in

234

00:13:05,190 --> 00:13:02,649

mind I started about 20 25 years ago to

235

00:13:08,190 --> 00:13:05,200

study physics to think about space to

236

00:13:10,380 --> 00:13:08,200

think about the universe and the

237

00:13:14,910 --> 00:13:10,390

specific of the search of the antimatter

238

00:13:18,660 --> 00:13:14,920

was one of my main and deep interest it

239

00:13:21,000 --> 00:13:18,670

may appear as a very strange coincidence

240

00:13:23,880 --> 00:13:21,010

that today I will be the one to take

241

00:13:26,430 --> 00:13:23,890

this unique piece of hardware take it

242

00:13:28,680 --> 00:13:26,440

from the Bay of the shadow and give it

243

00:13:34,710 --> 00:13:28,690

to install on on the station and

244

00:13:37,800 --> 00:13:34,720

throughout my studies despite my Air

245

00:13:40,410 --> 00:13:37,810

Force career got me more than once off

246

00:13:43,440 --> 00:13:40,420

track from studying physics I always

247

00:13:45,590 --> 00:13:43,450

have remained with this deep interest

248

00:13:48,449 --> 00:13:45,600

for the mystery of the universe

249

00:13:52,230 --> 00:13:48,459

something else that I like to underline

250

00:13:56,639 --> 00:13:52,240

is this unique piece of device that is

251  
00:13:57,920 --> 00:13:56,649  
hi ms Alpha Magnetic Spectrometer it is

252  
00:14:02,130 --> 00:13:57,930  
something that we don't know exactly

253  
00:14:05,040 --> 00:14:02,140  
what will give it to us in fact he has

254  
00:14:10,439 --> 00:14:05,050  
flown already once back in if I am not

255  
00:14:13,800 --> 00:14:10,449  
mistaken back in 1998 and in that case

256  
00:14:16,470 --> 00:14:13,810  
we could not find any trace of

257  
00:14:18,990 --> 00:14:16,480  
antimatter so the other question remains

258  
00:14:21,870 --> 00:14:19,000  
whether we'll be able to find something

259  
00:14:26,130 --> 00:14:21,880  
this second time around keeping the

260  
00:14:29,790 --> 00:14:26,140  
experiment for years in space because

261  
00:14:31,500 --> 00:14:29,800  
when the first time a mass flow it was

262  
00:14:34,319 --> 00:14:31,510  
only for the duration of the shuttle

263  
00:14:36,930 --> 00:14:34,329

spaceflight was only for about weeks now

264

00:14:39,960 --> 00:14:36,940

we'll have more time and we'll we'll be

265

00:14:42,900 --> 00:14:39,970

able to find trace of antimatter and if

266

00:14:45,449 --> 00:14:42,910

not maybe we can we'll be able to unfold

267

00:14:48,510 --> 00:14:45,459

them another another secret of the

268

00:14:51,030 --> 00:14:48,520

universe that currently our scientists

269

00:14:52,140 --> 00:14:51,040

are facing what they call dark matter or

270

00:14:55,830 --> 00:14:52,150

dark energy

271

00:15:01,890 --> 00:14:55,840

in simple words apparently our universe

272

00:15:06,080 --> 00:15:01,900

is not they were the way we looks if we

273

00:15:09,200 --> 00:15:06,090

do calculations of motions of our galaxy

274

00:15:14,040 --> 00:15:09,210

there must be something else some other

275

00:15:17,280 --> 00:15:14,050

huge mass or huge source of energy that

276

00:15:20,070 --> 00:15:17,290

would not see neither with our eyes nor

277

00:15:24,030 --> 00:15:20,080

with our instruments if there will be

278

00:15:27,210 --> 00:15:24,040

true maybe AMS will be able to detect

279

00:15:30,660 --> 00:15:27,220

some of direct or indirect effect are

280

00:15:34,530 --> 00:15:30,670

the presence of such energy and such a

281

00:15:38,370 --> 00:15:34,540

mass and looking to perspective those

282

00:15:41,130 --> 00:15:38,380

are the real questions that I hope we

283

00:15:44,340 --> 00:15:41,140

could give a contribution to unfold how

284

00:15:46,350 --> 00:15:44,350

does AMS how is it designed to do that

285

00:15:51,450 --> 00:15:46,360

what does it do once you've installed it

286

00:15:56,120 --> 00:15:51,460

on the stage aya NASA is a very complex

287

00:16:00,000 --> 00:15:56,130

device that has the capability to detect

288

00:16:04,740 --> 00:16:00,010

particles or antiparticles when a

289

00:16:07,020 --> 00:16:04,750

particle goes through IMS there are a

290

00:16:09,180 --> 00:16:07,030

number of sensors and devices that are

291

00:16:14,940 --> 00:16:09,190

capable to recognize the type of

292

00:16:18,870 --> 00:16:14,950

particle the energy and in then working

293

00:16:22,590 --> 00:16:18,880

on that data we will be able to

294

00:16:27,080 --> 00:16:22,600

scientist we will be able to understand

295

00:16:30,600 --> 00:16:27,090

where this particle was coming from and

296

00:16:34,590 --> 00:16:30,610

which kind of information is bringing to

297

00:16:36,750 --> 00:16:34,600

us after maybe many years or thousand of

298

00:16:40,530 --> 00:16:36,760

years of travel throughout the universe

299

00:16:43,830 --> 00:16:40,540

so in other words the AMS alpha magnetic

300

00:16:48,420 --> 00:16:43,840

spectrometer in a way could be compared

301  
00:16:51,450 --> 00:16:48,430  
using a very simple image like like

302  
00:16:54,900 --> 00:16:51,460  
maybe a lens with a lens we can see what

303  
00:16:58,490 --> 00:16:54,910  
is very small in a way i am a sea salt

304  
00:17:02,730 --> 00:16:58,500  
also sort of lines that is capable to

305  
00:17:05,070 --> 00:17:02,740  
give an identity a name in history an

306  
00:17:05,760 --> 00:17:05,080  
interpretation to those small particles

307  
00:17:08,850 --> 00:17:05,770  
that are

308  
00:17:12,000 --> 00:17:08,860  
are bombarding our planets from many

309  
00:17:14,460 --> 00:17:12,010  
distant place of the universe can you

310  
00:17:17,130 --> 00:17:14,470  
characterize for the non physicists

311  
00:17:19,860 --> 00:17:17,140  
among us what is the significance of

312  
00:17:22,500 --> 00:17:19,870  
what it may find in searching for for

313  
00:17:25,470 --> 00:17:22,510

dark matter and antimatter the

314

00:17:28,590 --> 00:17:25,480

significance is to start to have a

315

00:17:33,720 --> 00:17:28,600

little bit more awareness of who we are

316

00:17:36,960 --> 00:17:33,730

one of the fundamental question is from

317

00:17:40,380 --> 00:17:36,970

where our universe is coming the Big

318

00:17:41,790 --> 00:17:40,390

Bang if the Big Bang is true why there

319

00:17:45,090 --> 00:17:41,800

is no symmetry between matter and

320

00:17:49,110 --> 00:17:45,100

antimatter the other most more recent

321

00:17:50,790 --> 00:17:49,120

question is if the universe is not all

322

00:17:53,160 --> 00:17:50,800

that we see but there is something that

323

00:17:56,310 --> 00:17:53,170

is dark buying the scenes that we cannot

324

00:17:59,790 --> 00:17:56,320

see or measure what is the meaning of it

325

00:18:02,970 --> 00:17:59,800

so those are very fundamental questions

326

00:18:05,190 --> 00:18:02,980

that I have a huge impact in an hour

327

00:18:09,450 --> 00:18:05,200

understanding on who we are and where we

328

00:18:11,430 --> 00:18:09,460

are going an AMS has quite a strong

329

00:18:13,230 --> 00:18:11,440

European pedigree in terms of the

330

00:18:17,900 --> 00:18:13,240

hardware and and the background of the

331

00:18:21,480 --> 00:18:17,910

experiment doesn't it IMS obviously is

332

00:18:25,020 --> 00:18:21,490

under one name something Nobel Prize for

333

00:18:28,170 --> 00:18:25,030

Physics and he has being the leader of

334

00:18:31,410 --> 00:18:28,180

the first IMS and the second Europe is

335

00:18:33,660 --> 00:18:31,420

giving offering a huge bill significant

336

00:18:36,480 --> 00:18:33,670

contribution Italy if I am not mistaken

337

00:18:40,230 --> 00:18:36,490

is one of the major contributor maybe

338

00:18:43,590 --> 00:18:40,240

the second and obviously this is

339

00:18:45,300 --> 00:18:43,600  
underlining our participation and

340

00:18:47,820 --> 00:18:45,310  
contribution not only to the

341

00:18:50,040 --> 00:18:47,830  
international space station but also to

342

00:18:51,660 --> 00:18:50,050  
the science and bored of it you

343

00:18:54,240 --> 00:18:51,670  
mentioned a couple of minutes ago that

344

00:18:56,940 --> 00:18:54,250  
you will be the arm operator the shuttle

345

00:18:58,680 --> 00:18:56,950  
arm operator for the installation of AMS

346

00:19:01,050 --> 00:18:58,690  
can you tell me a little bit more about

347

00:19:02,820 --> 00:19:01,060  
the procedure for getting it out of the

348

00:19:05,070 --> 00:19:02,830  
payload Bay and installed up on the

349

00:19:09,120 --> 00:19:05,080  
station trust the procedure is very

350

00:19:11,640 --> 00:19:09,130  
simple the complexity is how to operate

351

00:19:14,940 --> 00:19:11,650

the arm to achieve that objective the

352

00:19:18,240 --> 00:19:14,950

procedure is simple is simply the AMS is

353

00:19:19,100 --> 00:19:18,250

in the bay and the arm operator that is

354

00:19:22,100 --> 00:19:19,110

a mechanical

355

00:19:25,820 --> 00:19:22,110

it just as the responsibility to grab it

356

00:19:29,000 --> 00:19:25,830

and then I release it and then I read it

357

00:19:32,660 --> 00:19:29,010

up an offer to the international space

358

00:19:35,390 --> 00:19:32,670

station operator that by the way is our

359

00:19:37,820 --> 00:19:35,400

pilot is a Gregory Johnson boxes

360

00:19:40,640 --> 00:19:37,830

nickname he will be on the station side

361

00:19:44,600 --> 00:19:40,650

it will be operating the station arm so

362

00:19:48,650 --> 00:19:44,610

you will be some kind of seconds in

363

00:19:50,840 --> 00:19:48,660

space and I will be offering AMS it will

364

00:19:53,180 --> 00:19:50,850

be taking it and install it installing

365

00:19:56,299 --> 00:19:53,190

on on the trust of the International

366

00:20:03,350 --> 00:19:56,309

Space Station it's another symbolic but

367

00:20:06,680 --> 00:20:03,360

very very much significant picture image

368

00:20:10,280 --> 00:20:06,690

that is underlining a cooperation in

369

00:20:12,350 --> 00:20:10,290

space during this mission then your crew

370

00:20:14,030 --> 00:20:12,360

time on the International Space Station

371

00:20:16,010 --> 00:20:14,040

there'll be some spacewalks going on

372

00:20:18,230 --> 00:20:16,020

there'll be cargill that will be moving

373

00:20:21,409 --> 00:20:18,240

back and forth a standard sort of

374

00:20:23,000 --> 00:20:21,419

mission profile that's laid out who to

375

00:20:25,280 --> 00:20:23,010

keep the International Space Station

376

00:20:28,760 --> 00:20:25,290

going on behalf of the international

377

00:20:31,130 --> 00:20:28,770

partners and sts-134 is the last

378

00:20:34,370 --> 00:20:31,140

scheduled flight of shuttle endeavour

379

00:20:37,250 --> 00:20:34,380

your ship what are your thoughts about

380

00:20:39,440 --> 00:20:37,260

this space shuttles place in the history

381

00:20:41,240 --> 00:20:39,450

of human space flight in and how the

382

00:20:45,020 --> 00:20:41,250

work of the shuttle program is going to

383

00:20:48,549 --> 00:20:45,030

be remembered you mentioned EBA I will

384

00:20:50,950 --> 00:20:48,559

not be involved in a VA and that's a

385

00:20:53,570 --> 00:20:50,960

motivation for me to start maybe

386

00:20:56,560 --> 00:20:53,580

considering something else for for my

387

00:20:59,390 --> 00:20:56,570

future I had already to spaceflight

388

00:21:01,430 --> 00:20:59,400

opportunities on this I use looking

389

00:21:06,590 --> 00:21:01,440

forward to fly on the shuttle I have a

390

00:21:10,100 --> 00:21:06,600

knot never done any VA so thinking about

391

00:21:12,890 --> 00:21:10,110

my my possible future obviously there

392

00:21:15,110 --> 00:21:12,900

would be a unique experience that maybe

393

00:21:18,230 --> 00:21:15,120

I would have a chance in the future to

394

00:21:22,210 --> 00:21:18,240

try myself thinking about the shadow the

395

00:21:26,360 --> 00:21:22,220

future of the shadow we all know that

396

00:21:29,210 --> 00:21:26,370

the sts-134 may be one of the last if

397

00:21:34,700 --> 00:21:29,220

not the last space flight

398

00:21:37,010 --> 00:21:34,710

the I I feel in a way missing something

399

00:21:39,890 --> 00:21:37,020

when it when I started thinking about

400

00:21:42,620 --> 00:21:39,900

the shuttle retiring because the future

401  
00:21:45,770 --> 00:21:42,630  
I am a pilot and a test pilot the Future

402  
00:21:48,110 --> 00:21:45,780  
of flying aircraft cannot be anything

403  
00:21:50,600 --> 00:21:48,120  
else than flying higher and faster

404  
00:21:54,200 --> 00:21:50,610  
similarly to what the shuttle is doing

405  
00:21:58,220 --> 00:21:54,210  
so future hypersonic aircraft and

406  
00:22:02,029 --> 00:21:58,230  
spacecraft will very much be similar to

407  
00:22:04,970 --> 00:22:02,039  
the way the shuttle is similar to the

408  
00:22:08,510 --> 00:22:04,980  
way the shuttle flies so in seeing the

409  
00:22:12,770 --> 00:22:08,520  
shuttle retiring without seeing what cam

410  
00:22:14,899 --> 00:22:12,780  
next seems that is missing something so

411  
00:22:18,590 --> 00:22:14,909  
i look with anticipation to read on the

412  
00:22:21,470 --> 00:22:18,600  
newspaper to the future projects that i

413  
00:22:26,149 --> 00:22:21,480

know that are all there we know how to

414

00:22:30,529 --> 00:22:26,159

fly I / sonic aircraft in a aerospace on

415

00:22:34,940 --> 00:22:30,539

in space and I feel that the time is

416

00:22:37,720 --> 00:22:34,950

mature to go beyond the 15,000 feet and

417

00:22:40,700 --> 00:22:37,730

the typical speed of a current aircraft

418

00:22:43,130 --> 00:22:40,710

i look with anticipation with the day

419

00:22:45,980 --> 00:22:43,140

the transportation future generation

420

00:22:48,470 --> 00:22:45,990

will will will arrive and the retiring

421

00:22:52,549 --> 00:22:48,480

of the shuttle is only a temporary

422

00:22:55,880 --> 00:22:52,559

interruption of a very exciting future

423

00:22:58,159 --> 00:22:55,890

that is about to happen while we got you

424

00:23:00,440 --> 00:22:58,169

on the subject of history I also note

425

00:23:02,659 --> 00:23:00,450

that you'll be flying this mission there

426

00:23:05,419 --> 00:23:02,669

in roughly the same period of time as

427

00:23:08,060 --> 00:23:05,429

the 50th anniversary of the first human

428

00:23:10,220 --> 00:23:08,070

spaceflight by yuri gagarin as well as

429

00:23:13,039 --> 00:23:10,230

the 30th anniversary of the first space

430

00:23:16,789 --> 00:23:13,049

shuttle flight what are your thoughts

431

00:23:19,310 --> 00:23:16,799

about being on orbit yourself so close

432

00:23:22,570 --> 00:23:19,320

to these milestones in human space

433

00:23:30,889 --> 00:23:27,349

you know it's a there is a mixed feeling

434

00:23:36,440 --> 00:23:30,899

if you think about you are in space on

435

00:23:38,479 --> 00:23:36,450

such important anniversary in a way you

436

00:23:41,779 --> 00:23:38,489

have a sensation that the time goes by

437

00:23:44,629 --> 00:23:41,789

very very very quickly on the other side

438

00:23:48,529 --> 00:23:44,639

you look at the future with excitement

439

00:23:51,940 --> 00:23:48,539

because 50 years is nothing and

440

00:23:54,680 --> 00:23:51,950

therefore if we try to judge what ow

441

00:23:57,529 --> 00:23:54,690

huge are the progresses that we have

442

00:24:00,019 --> 00:23:57,539

done in the last 50 years and you

443

00:24:04,549 --> 00:24:00,029

project yourself to the next 50 years I

444

00:24:07,159 --> 00:24:04,559

have three kids and obviously I continue

445

00:24:10,820 --> 00:24:07,169

to try to motivate them to be involved

446

00:24:12,589 --> 00:24:10,830

in technology in space because that's my

447

00:24:16,879 --> 00:24:12,599

future their future the future of

448

00:24:19,999 --> 00:24:16,889

humanity let me ask you about that 50

449

00:24:22,609 --> 00:24:20,009

years in the future then if we've come

450

00:24:24,649 --> 00:24:22,619

this far in the past 50 years where do

451  
00:24:28,940 --> 00:24:24,659  
you think we will be 50 years from now

452  
00:24:31,339 --> 00:24:28,950  
my personal bat is on an aerospace as I

453  
00:24:34,700 --> 00:24:31,349  
was saying I would be inclined to

454  
00:24:39,049 --> 00:24:34,710  
consider the next technological back

455  
00:24:42,320 --> 00:24:39,059  
through to allow for engine capability

456  
00:24:46,159 --> 00:24:42,330  
and the flying capability for machines

457  
00:24:49,519 --> 00:24:46,169  
to become hypersonic vehicles so to

458  
00:24:54,079 --> 00:24:49,529  
reduce time to go from one place to the

459  
00:24:57,320 --> 00:24:54,089  
other alert increase options for

460  
00:25:00,019 --> 00:24:57,330  
commercial initiatives back and forth

461  
00:25:04,129 --> 00:25:00,029  
from the low Earth orbit something that

462  
00:25:07,089 --> 00:25:04,139  
we are already witnessing and that would

463  
00:25:11,060 --> 00:25:07,099

be the area where I would personally be

464

00:25:13,339 --> 00:25:11,070

mostly interested in and I would be

465

00:25:16,909 --> 00:25:13,349

personally concentrating my my mental

466

00:25:19,909 --> 00:25:16,919

energy and my resources obviously i also

467

00:25:24,499 --> 00:25:19,919

look with great interest anything that

468

00:25:27,950 --> 00:25:24,509

goes moon and beyond but I if I would

469

00:25:30,200 --> 00:25:27,960

have to take a peek and make a choice as