1
00:00:17,590 --> 00:00:15,040
we're here at the Jet Propulsion

2
00:00:20,080 --> 00:00:17,600
Laboratory in Pasadena California home

3
00:00:21,910 --> 00:00:20,090
of Mars rovers but it turns out the

4
00:00:24,040 --> 00:00:21,920
folks working here are doing a lot more

5
00:00:27,160 --> 00:00:24,050
than that and I just happen to have here

6
00:00:29,019 --> 00:00:27,170
dr. Mike wrestler he is a miri project

7
00:00:31,810 --> 00:00:29,029
scientist Mary project scientist a

8
00:00:33,580 --> 00:00:31,820
mouthful what do you do in that job so

9
00:00:35,530 --> 00:00:33,590
miri is an instrument that will fly on

10
00:00:37,360 --> 00:00:35,540
the James Webb Space Telescope and it's

11
00:00:39,549 --> 00:00:37,370
sensitive to infrared light rather than

12
00:00:41,530 --> 00:00:39,559
visible wavelengths so we can see the

13
00:00:43,990 --> 00:00:41,540

heat from astronomical sources rather

14
00:00:45,490 --> 00:00:44,000
than the visible light that you see when

15
00:00:47,350 --> 00:00:45,500
if you look through a telescope with

16
00:00:50,229 --> 00:00:47,360
your eyes you are in charge of the

17
00:00:52,660 --> 00:00:50,239
production of the detectors what exactly

18
00:00:54,880 --> 00:00:52,670
is a detector the detectors are the

19
00:00:56,979 --> 00:00:54,890
sensors so if you have a digital camera

20
00:00:58,630 --> 00:00:56,989
there's a little electronic chip in the

21
00:01:01,359 --> 00:00:58,640
heart of the camera and that's the

22
00:01:03,219 --> 00:01:01,369
sensor it's what gathers a light from

23
00:01:04,450 --> 00:01:03,229
the lenses and converts it into a

24
00:01:06,550 --> 00:01:04,460
picture that you can look at your

25
00:01:07,960 --> 00:01:06,560
computer later on so the instrument that

26
00:01:10,359 --> 00:01:07,970
we're working on does exactly the same

27
00:01:12,039 --> 00:01:10,369
thing let's take a look at it and I

28
00:01:14,380 --> 00:01:12,049
think we have to get into bunny suits is

29
00:01:18,850 --> 00:01:14,390
that right well smocks to keep things

30
00:01:31,070 --> 00:01:18,860
clean so let me get my hair done today

31
00:01:36,170 --> 00:01:34,010
we have a light source basically a very

32
00:01:37,730 --> 00:01:36,180
sophisticated little light bulb that's

33
00:01:39,800 --> 00:01:37,740
mounted in our test setup that's shining

34
00:01:42,140 --> 00:01:39,810
on the detector and the detector is

35
00:01:44,210 --> 00:01:42,150
collecting light in steps we can see

36
00:01:47,890 --> 00:01:44,220
that the detector is indeed very

37
00:01:50,810 --> 00:01:47,900
sensitive it responds very well to light

38
00:01:52,370 --> 00:01:50,820

by where it saturates we can tell how

39
00:01:54,620 --> 00:01:52,380
bright a star will be able to look at

40
00:01:56,660 --> 00:01:54,630
once once James Webb actually launches

41
00:01:59,150 --> 00:01:56,670
all the right spots are bright because

42
00:02:02,050 --> 00:01:59,160
there's no bad pixels no hot pixels you

43
00:02:04,940 --> 00:02:02,060
know everything's just as it should be

44
00:02:08,690 --> 00:02:04,950
the detectors go through environmental

45
00:02:13,550 --> 00:02:08,700
tests they're shaken and chilled to make

46
00:02:14,960 --> 00:02:13,560
sure they survive the rigors of space so

47
00:02:16,760 --> 00:02:14,970
now it's time to do a final inspection

48
00:02:18,140 --> 00:02:16,770
of the unit to make sure nothing's

49
00:02:20,240 --> 00:02:18,150
happened to it while we were doing the

50
00:02:21,770 --> 00:02:20,250
testing so we want to check it to make

51
00:02:23,540 --> 00:02:21,780
sure that nobody accidentally got a

52
00:02:25,370 --> 00:02:23,550
fingerprint on it we want to make sure

53
00:02:27,620 --> 00:02:25,380
there are no broken wires or other

54
00:02:30,470 --> 00:02:27,630
damage to the unit we want to make sure

55
00:02:32,540 --> 00:02:30,480
everything is just fine so we're really

56
00:02:34,220 --> 00:02:32,550
wrapping up and were able to say this

57
00:02:36,890 --> 00:02:34,230
module is fully qualified and ready to

58
00:02:39,590 --> 00:02:36,900
go the mid-infrared instrument or Miri

59
00:02:41,870 --> 00:02:39,600
has three detectors all of which have to

60
00:02:43,910 --> 00:02:41,880
be precisely aligned with each other to

61
00:02:46,040 --> 00:02:43,920
within half the width of a human hair