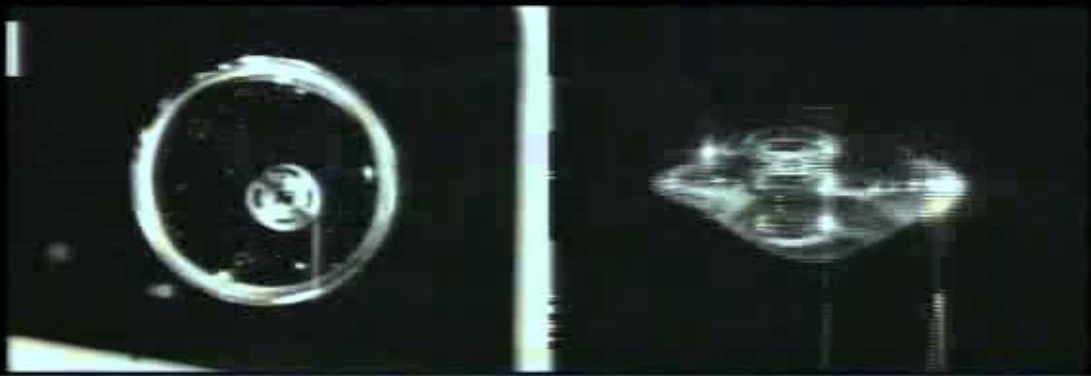

Top View

Side View

SCIENCE TELEVISION

Drop Physics Module

1
00:00:23,830 --> 00:00:42,320
I feel safe I forgive you go ahead Kathy

2
00:00:48,600 --> 00:00:46,860
let me know and I'll quit working on as

3
00:00:52,500 --> 00:00:48,610
you can see this is like autoclave

4
00:00:54,869 --> 00:00:52,510
number two very similar population of

5
00:00:58,009 --> 00:00:54,879
very small where I suspect the gel

6
00:01:00,180 --> 00:00:58,019
chronicles a couple of bubbles mixed in

7
00:01:06,990 --> 00:01:00,190
and I don't believe there's any lights

8
00:01:18,420 --> 00:01:07,000
here at this time let's switch the glove

9
00:01:36,530 --> 00:01:18,430
box camera day microscope camera happy

10
00:01:45,030 --> 00:01:38,789
they saw panse will ferrell we're

11
00:01:46,980 --> 00:01:45,040
receiving the microscope view now guys

12
00:01:50,270 --> 00:01:46,990
you can see without a uniform populated

13
00:01:54,590 --> 00:01:50,280

of what I suspect the job chronicles

14
00:02:07,609 --> 00:02:05,180
alright that's about it copy that fifty

15
00:02:10,580 --> 00:02:07,619
number seven is a gel we don't really

16
00:02:16,070 --> 00:02:10,590
need to switch to something else eight

17
00:02:20,270 --> 00:02:16,080
is also a jealous viscous 10 and 9 at

18
00:02:21,559 --> 00:02:20,280
gels 11 is still a gel at 12 is still a

19
00:02:30,490 --> 00:02:21,569
job and they all look pretty much the

20
00:02:37,280 --> 00:02:34,699
ok out the pictures that you sent back

21
00:02:39,890 --> 00:02:37,290
and the last run show us that the

22
00:02:42,680 --> 00:02:39,900
crystallites are much bigger and better

23
00:02:43,910 --> 00:02:42,690
than we expected and the grand

24
00:02:46,280 --> 00:02:43,920
scattering that we're getting is

25
00:02:47,840 --> 00:02:46,290
saturating the screen so we can't get a

26
00:02:53,210 --> 00:02:47,850
good reading of what the crystal

27
00:02:56,150 --> 00:02:53,220
structure is so the idea is to do a run

28
00:02:58,640 --> 00:02:56,160
again of some of the old samples with a

29
00:03:00,979 --> 00:02:58,650
lower aperture setting and also to try

30
00:03:03,620 --> 00:03:00,989
and modernize the samples and get

31
00:03:06,229 --> 00:03:03,630
smaller crystallites for our comparisons

32
00:03:07,819 --> 00:03:06,239
for what we get on the ground that's

33
00:03:11,000 --> 00:03:07,829
where we want to do why we changed

34
00:03:14,390 --> 00:03:11,010
procedures so we can do the samples that

35
00:03:16,640 --> 00:03:14,400
we've already run again we also want to

36
00:03:19,099 --> 00:03:16,650
see whether they've annealed and grown

37
00:03:22,180 --> 00:03:19,109
bigger and things like that because they

38
00:03:24,530 --> 00:03:22,190

just grown much better than we expected

39
00:03:26,630 --> 00:03:24,540
that's essentially the rationale and

40
00:03:29,330 --> 00:03:26,640
since the crystallites are much bigger

41
00:03:31,460 --> 00:03:29,340
we think we can get away with a shorter

42
00:03:36,140 --> 00:03:31,470
run for the averaging for the Bragg

43
00:03:37,610 --> 00:03:36,150
scattering sounds good to me and that's

44
00:03:41,840 --> 00:03:37,620
nice to hear that you get something

45
00:03:44,000 --> 00:03:41,850
unexpected that our positive a copy

46
00:03:54,820 --> 00:03:44,010
their beautiful pictures and beautiful

47
00:04:03,130 --> 00:03:56,980
and I'd like a question on a homogenous

48
00:04:06,250 --> 00:04:03,140
Asian precision we're now receiving live

49
00:04:09,100 --> 00:04:06,260
video downlink from inside the glove box

50
00:04:12,520 --> 00:04:09,110
facility the colloidal disorder order

51
00:04:15,880 --> 00:04:12,530
transition experiment or seedot is being

52
00:04:18,479 --> 00:04:15,890
performed in this glove box facility at

53
00:04:22,780 --> 00:04:18,489
the moment earlier in the mission this

54
00:04:25,270 --> 00:04:22,790
experiment was set up and at various

55
00:04:28,030 --> 00:04:25,280
times throughout the mission crew member

56
00:04:30,580 --> 00:04:28,040
set up cameras in the glove box facility

57
00:04:32,050 --> 00:04:30,590
in order to view the progress of the

58
00:04:51,470 --> 00:04:32,060
crystals that are growing in this

59
00:04:58,500 --> 00:04:55,860
we are now receiving live video downlink

60
00:05:15,900 --> 00:04:58,510
looking at the top view of the drop

61
00:05:20,800 --> 00:05:19,000
the experiment on the ground experiment

62
00:05:24,070 --> 00:05:20,810
team on the ground has the capability to

63
00:05:27,060 --> 00:05:24,080

view both of these experiment cameras

64
00:05:29,910 --> 00:05:27,070
simultaneously due to the high packed

65
00:05:41,700 --> 00:05:29,920
digital television technology

66
00:05:46,660 --> 00:05:44,410
the direction of the force being applied

67
00:05:49,020 --> 00:05:46,670
to the drop is from the top and the

68
00:05:54,310 --> 00:05:49,030
bottom this causes the drop to be

69
00:05:57,970 --> 00:05:54,320
squeezed or compressed in the center and

70
00:06:00,910 --> 00:05:57,980
causes the drop to elongate in a

71
00:06:04,150 --> 00:06:00,920
horizontal direction if you look at the

72
00:06:06,070 --> 00:06:04,160
top view of this drop on the left side

73
00:06:08,590 --> 00:06:06,080
of the screen you can see that there is

74
00:06:10,900 --> 00:06:08,600
very little change in the dimensions of

75
00:06:18,159 --> 00:06:10,910
the drop looking at the top however from

76
00:06:23,050 --> 00:06:18,169
the side looking from the side or the

77
00:06:25,330 --> 00:06:23,060
right-hand view the drop the drop

78
00:06:27,940 --> 00:06:25,340
continues to be compressed from the top

79
00:06:30,820 --> 00:06:27,950
and bottom directions with the vertical

80
00:06:32,860 --> 00:06:30,830
direction as kathy thornton continues to

81
00:06:35,500 --> 00:06:32,870
increase the strength of the acoustic

82
00:06:38,500 --> 00:06:35,510
force that is compressing the straw the

83
00:06:41,260 --> 00:06:38,510
width of the drop continues to become

84
00:06:48,969 --> 00:06:41,270
larger and the height continues to

85
00:07:01,939 --> 00:06:51,800
the experiment team for this experiment

86
00:07:04,540 --> 00:07:01,949
is looking we are receiving line video

87
00:07:09,920 --> 00:07:04,550
downlink from a brad camera that is

88
00:07:12,170 --> 00:07:09,930

located in the glove box facility this

89
00:07:14,600 --> 00:07:12,180
is used on the colloidal disorder order

90
00:07:16,960 --> 00:07:14,610
transition experiment this is an

91
00:07:26,270 --> 00:07:16,970
experiment that looks at glass spheres

92
00:07:28,460 --> 00:07:26,280
to look at how liquids form solids these

93
00:07:30,710 --> 00:07:28,470
glass spheres are used because the

94
00:07:33,439 --> 00:07:30,720
forces that act on these glass spheres

95
00:07:37,070 --> 00:07:33,449
are very simple and they can be used to

96
00:07:39,770 --> 00:07:37,080
model other materials that would have

97
00:07:42,310 --> 00:07:39,780
that would be composed of atoms these

98
00:07:45,610 --> 00:07:42,320
atoms would have a much more complicated

99
00:07:49,490 --> 00:07:45,620
force acting upon these atoms and

100
00:07:51,080 --> 00:07:49,500
therefore the interaction of the liquid

101
00:07:53,510 --> 00:07:51,090
and the solid would be much more

102
00:07:56,960 --> 00:07:53,520
difficult to understand so they use

103
00:08:00,320 --> 00:07:56,970
these glass fears in order to look at

104
00:08:01,730 --> 00:08:00,330
the transition that these glass fears go

105
00:08:08,339 --> 00:08:01,740
through when they change from a liquid

106
00:08:13,149 --> 00:08:10,960
the equipment seen here is part of an

107
00:08:16,629 --> 00:08:13,159
apparatus designed to help meet the

108
00:08:19,059 --> 00:08:16,639
needs of growing food and plant items in

109
00:08:21,129 --> 00:08:19,069
space alright now we're looking at some

110
00:08:23,260 --> 00:08:21,139
footage of a potato plant being grown

111
00:08:26,409 --> 00:08:23,270
aboard the space shuttle Columbia right

112
00:08:29,589 --> 00:08:26,419
now the special systems built into the

113
00:08:31,869 --> 00:08:29,599

astra culture equipment includes systems

114
00:08:35,589 --> 00:08:31,879
for the delivery of nutrients to the

115
00:08:37,449 --> 00:08:35,599
plants the modes for fluid flow and

116
00:08:38,409 --> 00:08:37,459
fluid delivery to the plants are

117
00:08:40,990 --> 00:08:38,419
different in the microgravity

118
00:08:42,969 --> 00:08:41,000
environment of space and the astra

119
00:08:46,449 --> 00:08:42,979
culture team has developed specialized

120
00:08:48,449 --> 00:08:46,459
equipment to help feed and water the

121
00:08:49,930 --> 00:08:48,459
potato plant we see growing here

122
00:08:52,150 --> 00:08:49,940
additionally they have developed

123
00:08:54,610 --> 00:08:52,160
subsystems which provide for the control

124
00:08:57,310 --> 00:08:54,620
of the humidity or the level of water in

125
00:08:59,290 --> 00:08:57,320
the air around the plant and also

126
00:09:01,960 --> 00:08:59,300
they've developed some special lighting

127
00:09:04,269 --> 00:09:01,970
systems which are very low power

128
00:09:06,069 --> 00:09:04,279
consumption lighting systems so that

129
00:09:19,090 --> 00:09:06,079
they're very efficient for use in the

130
00:09:19,100 --> 00:09:28,480
hot spell Columbia Huntsville go ahead

131
00:09:32,300 --> 00:09:30,950
hey Angie its mike la good morning

132
00:09:36,830 --> 00:09:32,310
listen I was wondering if we could get a

133
00:09:38,480 --> 00:09:36,840
head start on PA o event set up and be

134
00:09:44,060 --> 00:09:38,490
able to reconfigure some of the switches

135
00:10:14,710 --> 00:09:44,070
down here with the vest stand by LA and

136
00:10:20,600 --> 00:10:17,540
and payload specialist Fred Leslie he's

137
00:11:06,390 --> 00:10:20,610
taking a brief exercise break before his

138
00:11:11,730 --> 00:11:09,330

I'm so Claudia to be more specific what

139
00:11:15,030 --> 00:11:11,740
I wanted to do is take your DPM to

140
00:11:17,460 --> 00:11:15,040
source from the orbital 1 / I back to

141
00:11:27,990 --> 00:11:17,470
channel psych easy or we don't want to

142
00:11:29,280 --> 00:11:28,000
handle for some help copy that la and