

**INVESTIGATION
SEEKS TO CREATE**

SELF-ASSEMBLING MATERIALS



1
00:00:00,867 --> 00:00:01,568
>> ONE OF THE THINGS

2
00:00:01,568 --> 00:00:02,736
THEY'RE GONNA HAVE TO DO

3
00:00:02,736 --> 00:00:04,304
FOR SPACE EXPLORATION IS

4
00:00:04,304 --> 00:00:06,272
DO ADDITIVE MANUFACTURING,

5
00:00:06,272 --> 00:00:07,707
BECAUSE WE MAY HAVE AN ENGINE

6
00:00:07,707 --> 00:00:09,275
PART THAT FAILS, AND

7
00:00:09,275 --> 00:00:10,043
YOU'RE CERTAINLY NOT GONNA

8
00:00:10,043 --> 00:00:11,945
TAKE UP SPARE ENGINE PARTS.

9
00:00:11,945 --> 00:00:12,612
YOU'RE GONNA HAVE TO

10
00:00:12,612 --> 00:00:13,913
MANUFACTURE THEM THERE.

11
00:00:13,913 --> 00:00:14,914
AND A LOT OF WHAT WE WANNA DO

12
00:00:14,914 --> 00:00:17,183
WITH THAT MEANS LOOKING AT

13
00:00:17,183 --> 00:00:19,352

MICROSCOPIC PARTICLES, BECAUSE

14

00:00:19,352 --> 00:00:21,388

THEY'RE BUILDING BLOCKS.

15

00:00:21,388 --> 00:00:23,323

AND NOW I THINK A BIG PART OF

16

00:00:23,323 --> 00:00:25,592

THE FUTURE IN THIS FIELD,

17

00:00:25,592 --> 00:00:26,393

AND FOR LOTS OF DIFFERENT

18

00:00:26,393 --> 00:00:29,262

REASONS, IS ACTIVE MATERIALS.

19

00:00:29,262 --> 00:00:30,964

SO NOW WE HAVE WAYS THAT

20

00:00:30,964 --> 00:00:32,165

INSTEAD OF JUST THE PARTICLES

21

00:00:32,165 --> 00:00:34,934

BEING JUST PARTICLES,

22

00:00:34,934 --> 00:00:36,269

WE CAN ACTIVATE THEM,

23

00:00:36,269 --> 00:00:37,704

WE CAN FUNCTIONALIZE THEM,

24

00:00:37,704 --> 00:00:39,506

WE CAN GET THEM TO ASSOCIATE

25

00:00:39,506 --> 00:00:41,741

WITH ONE ANOTHER SPECIFICALLY.

26

00:00:41,741 --> 00:00:42,442

SO ONE OF THE THINGS

27

00:00:42,442 --> 00:00:45,578

WE'RE AIMING FOR IS ACTIVE

28

00:00:45,578 --> 00:00:49,549

SELF-REPLICATION, EVOLUTION

29

00:00:49,549 --> 00:00:50,884

IN MICROGRAVITY,

30

00:00:50,884 --> 00:00:52,419

TO PUT LOTS OF THINGS TOGETHER

31

00:00:52,419 --> 00:00:54,053

AND TO OPTIMIZE PROPERTIES

32

00:00:54,053 --> 00:00:56,990

USING EVOLUTIONARY PROCESSES

33

00:00:56,990 --> 00:00:59,859

FROM NOT LIVING THINGS, BUT

34

00:00:59,859 --> 00:01:01,094

MIMICKING WHAT LIVING THINGS

35

00:01:01,094 --> 00:01:04,497

HAVE DONE SO SUCCESSFULLY.

36

00:01:04,497 --> 00:01:05,165

WE'LL LEARN HOW TO DO THAT

37

00:01:05,165 --> 00:01:07,100

ON EARTH EVENTUALLY, BUT

38

00:01:07,100 --> 00:01:09,102

BEFORE WE DO THAT, IT'S MUCH

39

00:01:09,102 --> 00:01:10,637

BETTER, BECAUSE THEY HAVE

40

00:01:10,637 --> 00:01:12,739

DIFFERENT DENSITIES, TO DO IT

41

00:01:12,739 --> 00:01:13,940

IN MICROGRAVITY.

42

00:01:15,008 --> 00:01:25,819

[MUSIC]

43

00:01:25,819 --> 00:01:26,820

IT'S ALWAYS REALLY IMPORTANT

44

00:01:26,820 --> 00:01:27,854

TO DO SOMETHING AT

45

00:01:27,854 --> 00:01:29,255

THE FOREFRONT OF SCIENCE THAT

46

00:01:29,255 --> 00:01:31,958

WILL THEN BECOME A FOREFRONT