Making Prebiotic Organics from Hadean Crust via Hypervelocity Impacts

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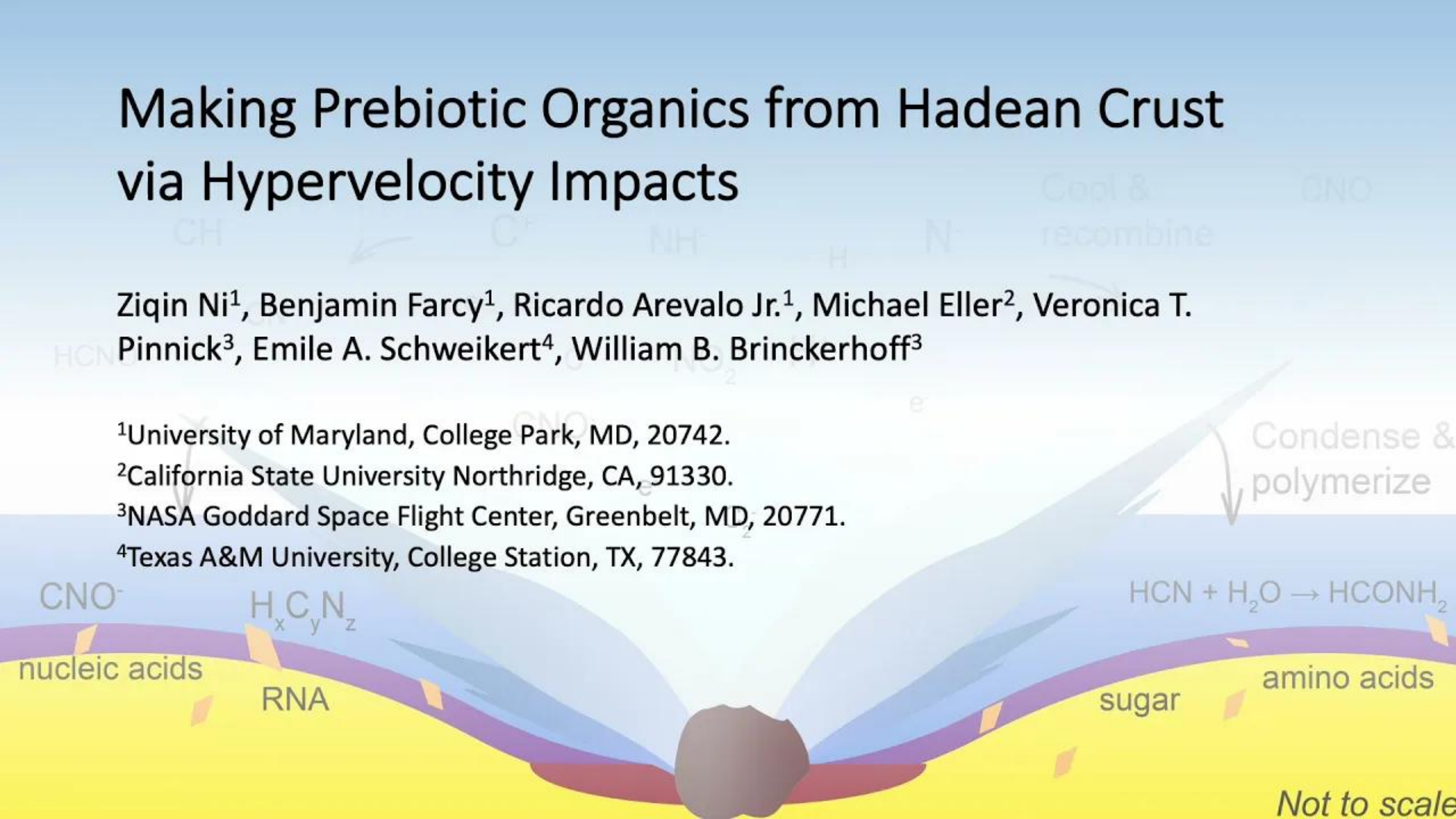

1
00:00:05,269 --> 00:00:02,710
hypervelocity impacts are often

2
00:00:08,310 --> 00:00:05,279
considered as catastrophic events

3
00:00:10,390 --> 00:00:08,320
that tend to destroy life however

4
00:00:12,629 --> 00:00:10,400
previous studies have synthesized

5
00:00:13,589 --> 00:00:12,639
essential organic compounds using source

6
00:00:16,470 --> 00:00:13,599
of carbon and

7
00:00:20,550 --> 00:00:16,480
nitrogen in primitive atmospheres via

8
00:00:22,230 --> 00:00:20,560
simulated hypervelocity impact events

9
00:00:24,230 --> 00:00:22,240
whether the carbon and the nitrogen

10
00:00:27,029 --> 00:00:24,240
stored in the primitive crust

11
00:00:28,390 --> 00:00:27,039
could also synthesize organics via hyper

12
00:00:31,910 --> 00:00:28,400
velocity impacts

13
00:00:35,910 --> 00:00:34,470

in these studies we simulate the impact

14
00:00:37,990 --> 00:00:35,920
event via high power

15
00:00:39,830 --> 00:00:38,000
pose later ablation and the physical

16
00:00:43,670 --> 00:00:39,840
bombardment of carbon 60

17
00:00:44,630 --> 00:00:43,680
onto a target we observe molecular

18
00:00:47,670 --> 00:00:44,640
recombination

19
00:00:50,470 --> 00:00:47,680
of cn and cmo in the plasma plume

20
00:00:52,630 --> 00:00:50,480
where only geological matrices are used

21
00:00:55,350 --> 00:00:52,640
as the starting materials

22
00:00:57,990 --> 00:00:55,360
this result indicates that carbon and

23
00:01:01,189 --> 00:00:58,000
nitrogen stored in the early earth crust

24
00:01:05,350 --> 00:01:01,199
could have contributed significantly to

25
00:01:07,429 --> 00:01:05,360
prebiotic inventory in early earth

26
00:01:09,429 --> 00:01:07,439
further interaction of the prebiotic

27
00:01:10,070 --> 00:01:09,439
organics with the resource around the

28
00:01:11,830 --> 00:01:10,080
craters

29
00:01:13,230 --> 00:01:11,840
could have synthesized essential

30
00:01:16,070 --> 00:01:13,240
monomers promote

31
00:01:18,149 --> 00:01:16,080
polymerization and provide habitats that