



1  
00:00:00,000 --> 00:00:22,120  
(Music)

2  
00:00:22,140 --> 00:00:23,810  
Narrator: Dr. Louis Allamandola is an

3  
00:00:23,830 --> 00:00:26,340  
internationally acclaimed scientist whose work

4  
00:00:26,360 --> 00:00:28,890  
revolutionized human understanding of materials

5  
00:00:28,910 --> 00:00:30,540  
in the Universe.

6  
00:00:30,560 --> 00:00:32,680  
When he entered the field of astrochemistry in

7  
00:00:32,700 --> 00:00:36,200  
1976, the composition of interstellar dust was

8  
00:00:36,220 --> 00:00:39,140  
largely guessed at and physicists saw the

9  
00:00:39,160 --> 00:00:42,100  
Universe as hydrogen-dominated.

10  
00:00:42,120 --> 00:00:44,450  
The notion of large, abundant, gas phase,

11  
00:00:44,470 --> 00:00:46,990  
carbon-rich molecules widespread throughout the

12  
00:00:47,010 --> 00:00:50,250  
Universe was considered impossible, the concept of

13  
00:00:50,270 --> 00:00:54,010

ices in dense molecular clouds ignored.

14  
00:00:54,030 --> 00:00:56,550  
As founding director of the Ames Astrochemistry

15  
00:00:56,570 --> 00:01:00,160  
Laboratory, Dr. Allamandola decided to challenge

16  
00:01:00,180 --> 00:01:02,800  
the assumptions beginning in 1983.

17  
00:01:02,820 --> 00:01:04,730  
He pioneered techniques that realistically

18  
00:01:04,750 --> 00:01:07,160  
mimicked the extreme temperatures and harsh

19  
00:01:07,180 --> 00:01:09,670  
radiation fields observed in the Solar System and

20  
00:01:09,690 --> 00:01:11,970  
deep space.

21  
00:01:11,990 --> 00:01:13,880  
These laboratory simulations allowed

22  
00:01:13,900 --> 00:01:17,380  
Dr. Allamandola and his team to interpret infrared

23  
00:01:17,400 --> 00:01:20,270  
observations made with NASA's Kuiper Airborne

24  
00:01:20,290 --> 00:01:22,190  
Observatory.

25  
00:01:22,210 --> 00:01:24,410  
He used the laboratory work to understand the

26  
00:01:24,430 --> 00:01:26,810  
breakthrough astronomical observations being made

27  
00:01:26,830 --> 00:01:29,700  
on the Kuiper to revolutionize our understanding

28  
00:01:29,720 --> 00:01:32,710  
of the chemistry, composition and spectroscopy of

29  
00:01:32,730 --> 00:01:34,820  
the cosmos.

30  
00:01:34,840 --> 00:01:37,460  
Highlights from his work include the introduction

31  
00:01:37,480 --> 00:01:39,700  
of new spectroscopic units to bridge the

32  
00:01:39,720 --> 00:01:41,370  
communication gap between

33  
00:01:41,390 --> 00:01:43,850  
chemists and astronomers.

34  
00:01:43,870 --> 00:01:46,900  
He and his colleagues proved that ices are present

35  
00:01:46,920 --> 00:01:49,780  
where stars and planets form and identified the

36  
00:01:49,800 --> 00:01:53,080  
molecules frozen in those ices.

37  
00:01:53,100 --> 00:01:55,890  
He demonstrated that biogenic organics could be

38  
00:01:55,910 --> 00:01:58,650

made in deep space.

39

00:01:58,670 --> 00:02:01,040

He recognized that polycyclic aromatic

40

00:02:01,060 --> 00:02:04,950

hydrocarbons or PAH's, shockingly large and

41

00:02:04,970 --> 00:02:08,430

complex molecules by astrochemical standards,

42

00:02:08,450 --> 00:02:12,370

are widespread and abundant across the Universe.

43

00:02:12,390 --> 00:02:14,900

Dr. Allamandola has been a key driver of the

44

00:02:14,920 --> 00:02:18,040

interstellar PAH model and has overseen the

45

00:02:18,060 --> 00:02:20,910

creation of the world's largest collection of PAH

46

00:02:20,930 --> 00:02:25,500

spectra at Ames to interpret the observations.

47

00:02:25,520 --> 00:02:28,190

Thanks to this spectral collection, astronomical

48

00:02:28,210 --> 00:02:31,620

PAH spectra are now becoming new probes of the

49

00:02:31,640 --> 00:02:33,760

physical and chemical conditions throughout

50

00:02:33,780 --> 00:02:36,410

our local universe.

51  
00:02:36,430 --> 00:02:39,200  
Dr. Allamandola has interpreted data from NASA's

52  
00:02:39,220 --> 00:02:42,270  
ground-, air- and space-based telescopes to guide

53  
00:02:42,290 --> 00:02:44,630  
his scientific studies.

54  
00:02:44,650 --> 00:02:47,710  
In the process, this work helped to shape future

55  
00:02:47,730 --> 00:02:49,670  
NASA science missions.

56  
00:02:49,690 --> 00:02:51,830  
He mentored the next generation of space

57  
00:02:51,850 --> 00:02:54,830  
scientists, has been accorded many honors and

58  
00:02:54,850 --> 00:02:56,560  
twice won the prestigious

59  
00:02:56,580 --> 00:03:00,250  
NASA Ames H. Julian Allen Award.

60  
00:03:00,270 --> 00:03:02,520  
He authored more than 220 peer-reviewed

61  
00:03:02,540 --> 00:03:04,710  
publications, and is one of the world's

62  
00:03:04,730 --> 00:03:07,960  
most-cited space scientists.

63  
00:03:07,980 --> 00:03:11,680

Dr. Louis Allamandola is a visionary and pioneer

64  
00:03:11,700 --> 00:03:14,790  
in Astrochemistry and helped to redefine our

65  
00:03:14,810 --> 00:03:17,690  
understanding of the chemically rich and diverse

66  
00:03:17,710 --> 00:03:20,790  
molecular universe we know today.

67  
00:03:20,810 --> 00:03:25,180  
(Music)