

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

<https://www.wsj.com/articles/is-that-an-alien-probe-a-harvard-astronomer-thinks-it-might-be-11549638889>

WEEKEND CONFIDENTIAL

Is That an Alien Probe? A Harvard Astronomer Thinks It Might Be

Avi Loeb, chairman of Harvard's astronomy department, created a media maelstrom by suggesting that a mysterious space object might be from another civilization. He's relishing the attention as a teaching moment.

By Robert Lee Hotz

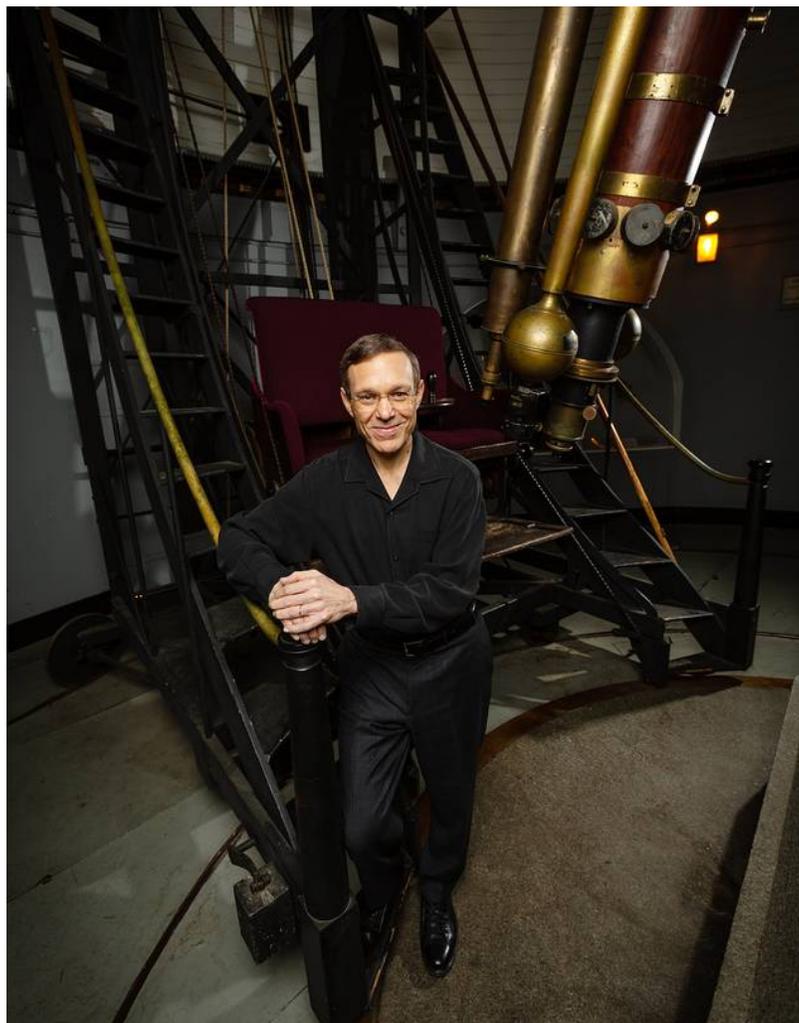
Feb. 8, 2019 10:14 a.m. ET

In the fall of 2017, astronomers in Hawaii spotted something strange speeding through the solar system. The reddish cylinder was like no comet or asteroid they had ever seen. They concluded it came from the stars and named it 'Oumuamua, which means first messenger in the language of the islands.

The longer they studied it, the deeper the mystery grew. Avi Loeb suggested that it might be an alien probe, launching a media maelstrom that has yet to die down. No crackpot is Dr. Loeb. He is the chairman of the astronomy department at Harvard, director of the Institute for Theory and Computation at the Harvard-Smithsonian Center for Astrophysics and an authority on the first stars in the early universe.

Dr. Loeb, 57, relishes the attention as a teaching moment. "I want to bring the search for extraterrestrial intelligence into the mainstream of astronomy," he says. "There is a taboo about discussing anything related to that."

The discovery of solar systems around other stars has supercharged the question of alien life and intelligence. So many exoplanets, as these worlds are called, have been found that astronomers calculate each star in the Milky Way likely has at least one planet in orbit around it. "Therefore if you roll the dice billions of times within our galaxy, it's likely we are not alone," Dr. Loeb says. "It is necessary to go out and look. We cannot put blinders on our telescopes because of prejudice."



'I want to bring the search for extraterrestrial intelligence into the mainstream of astronomy,' says Avi Loeb. PHOTO: JASON GROW FOR THE WALL STREET JOURNAL

A healthy scientific culture, he says, ought to encourage all interpretations of the evidence. In his view, it's worthwhile to find a way to identify artificial light on distant asteroids, or how to detect industrial pollution in alien atmospheres, or whether unusually intense blasts of extragalactic energy might be powering alien spacecraft—all theories he's published in recent research papers.

As astronomers scrutinized 'Oumuamua, it stood out in a half dozen ways, he says. The quarter-mile-long object was more elongated than a typical asteroid and appeared unusually thin. It accelerated like a comet but without the distinctive tail of out-gassing ice to propel it. Researchers couldn't account for its speed.

Writing in the *Astrophysical Journal Letters* last year, Dr. Loeb and his Harvard colleague Shmuel Bialy calculated the alternatives: It might be a hitherto unknown interstellar material, a shard of a planet that never quite formed, or artificial. It might even be "a fully operational probe sent intentionally to Earth," they wrote. That part went viral.



An artist's rendering of 'Oumuamua. PHOTO: EUROPEAN SOUTHERN OBSERVATORY/M. KORNMESSE

Dr. Loeb often opts for the road not taken, something he traces to his Israeli childhood. He grew up on his parent's farm about 12 miles from Tel Aviv. As he recalls, he collected the eggs every afternoon, drove a tractor on weekends and cultivated a taste for the works of the Existentialist philosophers. "I loved being alone, embedded in nature, because I could develop my own thoughts," he says. "Since that time, I don't like being in a crowd. I don't like thinking in a crowd."

At age 18, he reported for military service. The Israel Defense Forces tapped the wiry recruit for accelerated courses in mathematics and physics in addition to his regular military training. "We parachuted. We drove tanks. I was curious more about the principles of physics," he says. At age 24, he finished his doctorate in plasma physics and entered the Israeli defense department's industrial program. He spurned the military's list of practical problems, though, and organized a project at the Soreq Nuclear Research Center to explore propulsion theories.

In short order, he was invited to join the Institute for Advanced Study in Princeton—once home to Albert Einstein—on the condition that he change his specialty to astrophysics. Some years later, Harvard offered him a junior post. Now Dr. Loeb is the longest-serving chairman in the history of the astronomy department.

These days, his uniform is a tailored gray suit by Canali. He wears the latest Apple watch. He recently lost 60 pounds on a low-carb diet that includes a daily bar of chocolate. He keeps gourmet Neuhaus chocolates in his office credenza and displays in his work space more than a dozen photographs of his wife and two daughters.

Even in repose, he seems coiled to spring, like a cat poised expectantly at the mouse hole of a new idea. He pounces on data. "If I hear something, I immediately think of something," he says.

“It is not a matter of incubation. That’s my luck in a way. It allows me to earn a living by doing something that is easy for me.”

The center drawer of his filing cabinet is labeled “Ideas.” Inside is a folder fat with potential lines of inquiry, some of them no more than an equation scribbled on a scrap of paper. So far, he has published more than 700 research papers and four books. He’s working with a colleague on a textbook about the search for signs of alien presence. On his desk is a draft of a new technical paper on black hole binary stars.

The data needed to test his hypothesis about ‘Oumuamua may be available soon. He predicts that a new telescope in northern Chile called the Large Synoptic Survey Telescope, scheduled to open in 2020, ought to detect 10 similar interstellar objects every year. In addition, he and his colleagues have identified eight objects among the asteroids between Mars and Jupiter with unusual orbits that make them likely candidates for investigation.

“Most civilizations may all be dead by now, and that’s why we haven’t heard from them,” Dr. Loeb says. “The only way to look for them is not by signals, but by looking for artifacts, like technological equipment they left behind,” he says. “It is quite likely there is a lot of stuff floating out there.”

Write to Robert Lee Hotz at sciencejournal@wsj.com

MORE WEEKEND CONFIDENTIAL

- In Daniel Radcliffe’s New TBS Show, the Former Boy Wizard Seeks Comedy Magic February 1, 2019
- An Art Collector On a Mission to Share His Passion January 25, 2019
- Pete Hamill Revisits a Lifetime of Big Stories January 18, 2019
- With Netflix Show, Veteran Comic Brian Regan Gets His Big Break—at 60 January 11, 2019
- The Family Secret Uncovered by a Writer’s DNA Test January 4, 2019

Copyright © 2019 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.