Profile of Avi Loeb

By Abigail Klein Leichman

If aliens aboard a spaceship should happen to land in Prof. Avraham Loeb's backyard and invite him aboard for a ride, his wife would not expect him to refuse. "She jokes that she would just make sure I leave her the car keys and ask them not to ruin the lawn," says the Israeli-born astrophysicist.

Until such a spaceship shows up, Loeb is content to study the heavens as director of Harvard University's Institute for Theory and Computation in the Harvard-Smithsonian Center for Astrophysics http://www.cfa.harvard.edu/itc/.

"I get paid to think about the sky," the down-to-earth scientist is fond of saying. "The universe is the biggest environment surrounding us and we'd better get an informed view of this environment in order to get the correct perspective about our daily life."

Some 14 billion years after the Big Bang, Loeb is recognized as a foremost authority on how it all began and where it's going next. Quoted often in popular periodicals such as TIME and Scientific American, he enjoys sharing his vast knowledge with ordinary earthlings. The evening before he spoke with ISRAEL21c, some 500 people came to his public lecture at the Hebrew University about his latest book, *How Did the First Stars and Galaxies Form?* (Princeton University Press).

Perhaps his ability to interest the masses in colliding galaxies, black holes and gamma-ray bursts is due to his philosophical outlook. Growing up on a farm in a small Israeli village, Loeb would load up a tractor with books each weekend and go out to the fields to read.

"I was always interested in philosophy," he says. "It's difficult to answer big, basic questions about life as a philosopher, but in physics you can make progress."

Now approaching 49, Loeb was among the first select group of high-achieving Israelis in the Israel Defense Forces' Talpiot program, started in 1979 to harness the creativity of the country's best and brightest. He earned his undergraduate physics and math degree while sampling service in each military unit.

"I parachuted, I drove tanks ... the purpose is for participants to get to know what goes on in the army before starting to develop devices for army use."

Though he became an officer, Loeb opted to complete his remaining five years at Sorek Nuclear Research Center, leading to a Ph.D. in plasma physics at Hebrew University. His work on U.S. President Ronald Reagan's 1980s Strategic

Defense Initiative took him to Washington, where someone advised him to pursue a post-doctorate at Princeton.

At 24, Loeb was offered a five-year position in astrophysics by Prof. John Bahcall at the Institute for Advanced Study. In 1993, he moved to Harvard University as an assistant professor in the department of astronomy, where he was tenured just three years later.

Loeb, whose parents still live on the farm, has garnered awards and prestige for his pioneering research in many areas of astrophysics and cosmology. He has predicted that within “only” a few billion more years, the galaxies Milky Way and Andromeda will crash together and form “Milkomeda.” He’s become a virtual mentor to young researchers around the world looking for future frontiers in astrophysics.

Loeb and his Israeli wife, Ofrit Liviatan, and their two bilingual young daughters live in the Boston suburb of Lexington, Mass. They spend a few weeks every year in Israel courtesy of Loeb’s formal associations with the Weizmann Institute, Hebrew University and soon Tel Aviv University. Lecture invitations and conferences have given them an opportunity to visit places like Australia, Iceland, Europe, Japan, Tasmania and even Abu Dhabi, which Loeb had to use his American passport to enter.

Viewing the world from top down gives Loeb a unique perspective on the Arab-Israeli conflict – and on conflicts across the planet.

“People keep fighting over territory, but that situation may change if there is an external threat like an asteroid that will impact the Earth,” he surmises, adding that no such calamity is on the obvious horizon.

“An outside danger, or the discovery of an extraterrestrial civilization, might make us feel part of the same team. But for the time being, we have to be realistic and recognize that the real threat is countries like Iran. It is very important for Israel to maintain its technical superiority at all times, because we cannot risk being defeated in a major war.”

To do so, he concedes, Israel must do a better job of stemming the brain drain. “One of my priorities is to promote young Israeli scientists,” he says, pleased that the selection committee at his Institute for Theory and Computation chose a few Israeli post-docs this year.

“Israel produces exceptional talent,” Loeb concludes. “Efforts like Talpiot that make use of the genius in the population should be encouraged. Physics and technology are extremely important for national security, and it should be a national priority to keep talent here.”

https://www.cfa.harvard.edu/~loeb/Photos/Office/o.html
video of Loeb explaining how the first stars and galaxies formed:
http://www.youtube.com/watch?v=jNB8KuVM6Kc
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