SCIENCE

Yuri Milner, Russian Entrepreneur, Promises $100 Million for Alien Search

By DENNIS OVERBYE JULY 20, 2015

Extending his idea of philanthropy beyond the Earth and even the human species, Yuri Milner, the Russian Internet entrepreneur and founder of science giveaways like the annual $3 million Fundamental Physics Prizes, announced in London on Monday that he would spend at least $100 million in the next decade to search for signals from alien civilizations.

The money for Breakthrough Listen, as Mr. Milner calls the effort, is one of the biggest chunks of cash ever proffered for the so far fruitless quest for cosmic companionship known as the Search for Extraterrestrial Intelligence, or SETI. It will allow astronomers to see the kinds of radar used for air traffic control from any of the closest 1,000 stars, and to detect a laser with the power output of a common 100-watt light bulb from the distance of the nearest stars, some four light-years away, according to Mr. Milner's team.

It also guarantees bounteous observing time on some of the world's biggest radio telescopes — a rarity for SETI astronomers who are used to getting one night a year.

"It's just a miracle," said Frank Drake, an emeritus professor at the University of California, Santa Cruz, who joined Mr. Milner and others, including the cosmologist Stephen Hawking, in a news conference Monday at the Royal Society in London.

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Dan Werthimer, a longtime SETI researcher at the University of California, Berkeley, said, "This is beyond my wildest dreams."

In a prepared statement at the announcement, Dr. Hawking said atoms and the forces of nature and the dance of galaxies could explain the lights in the sky, but not the lights on Earth. "In an infinite universe there must be other occurrences of life," he said. "Or do our lights wander a lifeless universe? Either way, there is no bigger question."

Mr. Milner also announced a $1 million competition, called Breakthrough Message, to create messages that could be sent if we knew there was anybody out there to receive them.

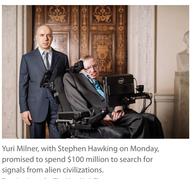
These could be propitious times for ET. The relentless improvement of electronics and computing power have made it possible to build receivers 50 times as sensitive as before, relieving astronomers of the need to guess what channels an extraterrestrial being might broadcast on. The astronomers can listen to all of them at once.

NASA's Kepler spacecraft and other hunters of planets circling distant stars have determined that there are billions of possible habitats for other beings in our galaxy.

Dr. Drake started it all in 1960 when he pointed a radio telescope at a pair of sunlike stars hoping to hear a "hello." He heard nothing, which has pretty much characterized the effort ever since.

No amount of cosmic silence, however, has been able to discourage astronomers who theorize that radio signals can bridge the gulfs between stars more cheaply than spacecraft, allowing distant species to communicate by a sort of cosmic ham radio or galactic Internet. And, they note, only a few thousand of the Milky Way's 200 billion stars have been sampled, on only a few of the billions of possible radio channels — a minuscule piece of what they call the "cosmic haystack."

A simple squeal or squawk, or an incomprehensible stream of numbers by a radio antenna pointed at one of those stars, would change history.



Yuri Milner, with Stephen Hawking on Monday, promised to spend $100 million to search for signals from alien civilizations.
Tom Jamieson for The New York Times

"We have a responsibility to not stop searching," Mr. Milner said in an interview. "It should always be happening in the background. This is the biggest question. We should be listening."

Mr. Milner has recruited a small coterie of scientists to run the project. Among them are Martin Rees of Cambridge University, Britain's astronomer royal, who will lead an advisory group; Peter Worden, former director of the NASA Ames Research Laboratory, home of the Kepler effort; Geoffrey Marcy of the University of California, Berkeley, a renowned exoplanet hunter; Dr. Werthimer; Andrew Siemion, also of Berkeley; and Ann Druyan, a co-author of both "Cosmos" television series and widow of the astronomer Carl Sagan.

According to Dr. Werthimer, about a third of Mr. Milner's money will go toward building new receiving equipment, and about a third will go toward hiring students and other astronomers.

The rest will be used to secure observing time. For now, that effort will include two of the largest radio telescopes in the world: the Robert C. Byrd Green Bank Telescope in West Virginia and the Csiro Parkes Telescope in New South Wales, Australia.

Both have had financial troubles in an era of flat budgets, and have been seeking partners to help keep the observatories running. Mr. Milner has agreed to underwrite 20 percent of the cost in return for 20 percent of the observing time.

"We could never get enough telescope time," Dr. Drake recalled. "Yuri can fix that with the click of a pen."

Dr. Werthimer, who will oversee the analysis of data, said it would be open to all, including the nine million users of SETI@home, a free screen saver program that processes SETI data in the background.

Not that any of this guarantees success. But, Mr. Milner said, "it's not crazy."

In 10 or 20 years, NASA could have telescopes in space that could determine the composition of a remote planet's atmosphere, he said. The presence of oxygen would be a smoking gun for life.

An advanced civilization may have already done that and targeted Earth, as a likely candidate for life, with a cosmic beacon.

Why would any species do such a thing? Ask why we build pyramids or presidential libraries.

Dr. Drake said his budget for the first radio search was $2,000. "We've come a long way," he said.

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