

Stephen Hawking joins futuristic bid to explore outer space (Update)

April 12 2016, by By Malcolm Ritter



Cosmologist Stephen Hawking, left, joined by a group of of scientist including Princeton physicist Freeman Dyson, right, announce the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, during a press conference, Tuesday, April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)

With famed physicist Stephen Hawking at his side, an Internet investor announced Tuesday that he's spending \$100 million on a futuristic plan to explore far outside our solar system.

Yuri Milner said the eventual goal is sending hundreds or thousands of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. That's more than 2,000 times as far as any spacecraft has gone so far.

Propelled by energy from a powerful array of Earth-based lasers, the spacecraft would fly at about one-fifth the speed of light. They could reach Alpha Centauri in 20 years, where they could make observations and send the results back to Earth.

They might discover a planet or planets there—experts think there may be some, but there's no proven sighting yet—and possibly even find signs of life there or elsewhere, said Milner and a panel of experts at the announcement. The three stars that make up Alpha Centauri are the closest stars to our star—the sun.

"We commit to the next great leap into the cosmos," Hawking said, "because we are human and our nature is to fly."

Hawking has joined Milner and Facebook founder Mark Zuckerberg on the board of the project, called Breakthrough Starshot, which includes a team of scientists. Milner said his \$100 million will go to establish the feasibility of the project, and that a launch itself would require far more money.



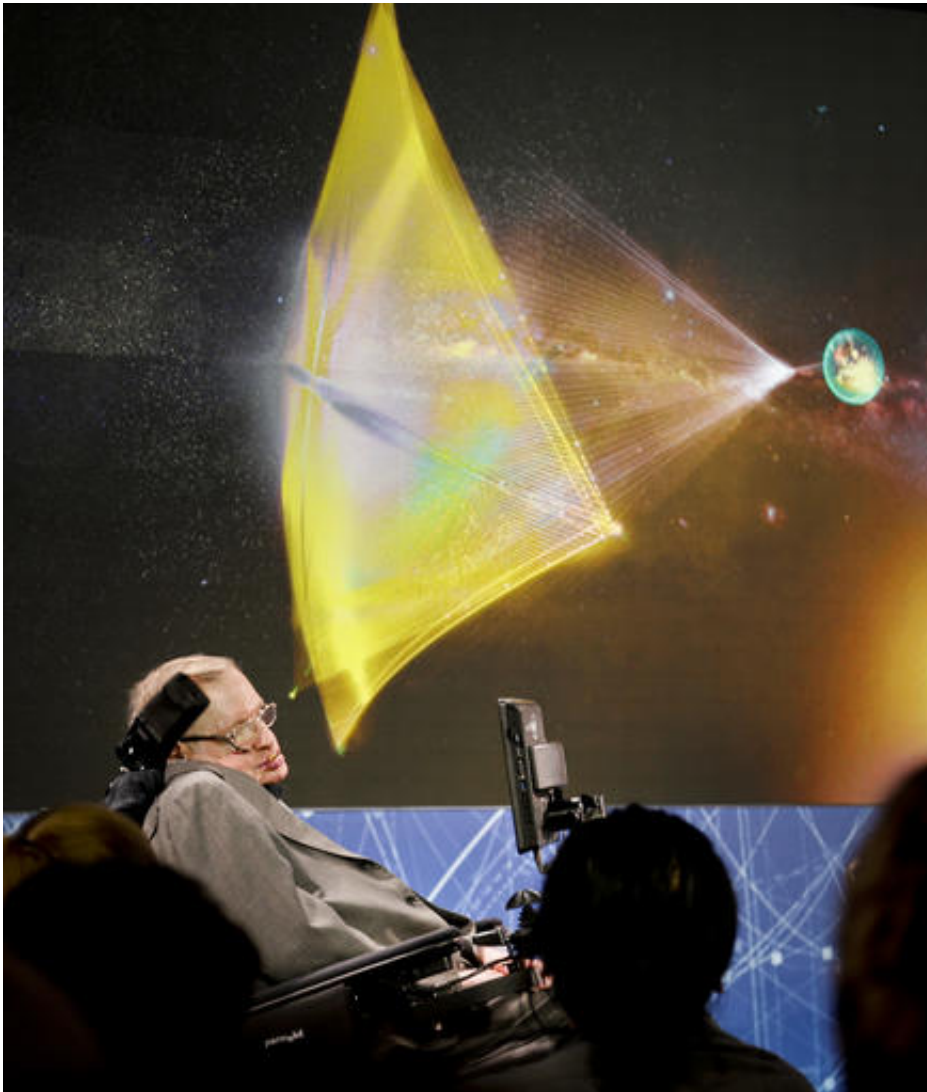
Internet investor and science philanthropist Yuri Milner, and a panel of scientists including renowned cosmologist Stephen Hawking, second from left, Princeton physicist Freeman Dyson, science author Ann Druyan, center, Harvard physicist Avi Loeb, third from right, NASA astronaut Dr. Mae C. Jemison, second from right, and former NASA director Pete Worden, far right, announce the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, during a press conference, Tuesday, April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)

Hawking is also part of a project Milner announced last summer to use earthbound telescopes to seek intelligent life in outer space.

For the Starshot project, the tiny spacecraft would be boosted into space by a conventional rocket, and then set free individually. They would capture the energy from the earthbound laser array with sails a few yards

wide. Milner said recent advances in electronic miniaturization, laser technology and fabrication of extremely thin and light materials have made such a mission realistic to consider.

"We can do more than gaze at the stars," Milner said. "We can actually reach them."



Renowned cosmologist Stephen Hawking, right, seated in a speech adaptive wheelchair, discuss the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, during a press conference on Tuesday, April 12, 2016, at One World Observatory in New York. The \$100

million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)

Avi Loeb, chair of Harvard's astronomy department and member of the Starshot project's management and advisory committee, told reporters that scientists have scrutinized the technical obstacles and "we don't see any showstoppers.... We think we can overcome all these challenges."

Hawking, of Cambridge University, said the plan fits in with what he said makes humans unique, which is transcending limits.

"With light beams, light sails and the lightest spacecraft ever built, we can launch a mission to Alpha Centauri within a generation," Hawking said.



Internet investor and science philanthropist Yuri Milner shows the Starchip, a microelectronic component spacecraft, during a press conference announcing the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, Tuesday, April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)

The project was announced on the 55th anniversary of the flight of Russian Yuri Gagarin, the first human in space. Milner was named after

him.

Lisa Kaltenegger, an astronomy professor at Cornell University, who is not involved in the project, said in an email, "I think it is inspiring on this date to plan our next journey to the stars."



Internet investor and science philanthropist Yuri Milner, left, listens as renowned cosmologist Stephen Hawking, right, speaks with the assistance of adaptive speech technology, during a press conference announcing the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, Tuesday April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)



Internet investor and science philanthropist Yuri Milner, left, and renowned cosmologist Stephen Hawking, right, seated in a speech adaptive wheelchair, discuss the new Breakthrough Initiative focusing on space exploration and the search for life in the universe, during a press conference, Tuesday, April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)



Former NASA astronaut Dr. Mae C. Jemison, listens during a press conference, where she was among a group of scientists announcing a new breakthrough initiative focusing on space exploration and the search for life in the universe, Tuesday April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)



Harvard physicist Avi Loeb, left, listens as former NASA astronaut Dr. Mae C. Jemison, speaks during a press conference where scientists announced a new breakthrough initiative focusing on space exploration and the search for life in the universe, Tuesday April 12, 2016, at One World Observatory in New York. The \$100 million project is aimed at establishing the feasibility of sending a swarm of tiny spacecraft, each weighing far less than an ounce, to the Alpha Centauri star system. (AP Photo/Bebeto Matthews)

More information: Project website:

breakthroughinitiatives.org/Initiative/3

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