

COLLOQUIUM

The Breakthrough Initiatives: The Search for Life in the Universe

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Breakthrough Prize Foundation

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4:00 p.m. - Wilson Hall, One West

On July 20, 2015 at the Royal Society, London, UK Yuri Milner and Professor Stephen Hawking announced the Breakthrough Listen Initiative. It is designed to look for signals from an intelligent civilization in our galaxy or beyond. This SETI search is orders of magnitude more encompassing and complete than any previous search. In addition, On April 12, 2016, in New York, NY, USA Milner and Hawking announced a new Initiative, Breakthrough StarShot designed to send a gram-class interstellar probe to Alpha Centauri within a generation. Each Initiative is initially funded at \$100 million (US) from private sources.

In January of this year Breakthrough Listen began observations on the Green Bank Observatory 100 meter radio telescope, the world's largest steered radio antenna. We have twice the bandwidth of any previous SETI search. We've observed 200 of the stars nearest to the earth and 40 of the nearest galaxies. In the near future we will observe all stars within 25 light years of earth and those stars within 250 light years that are similar to the sun – over 1700 stars. With the addition of the Australian Parkes Radio Telescope located in the southern hemisphere later in 2016, we will be able to access the entire sky. We also began optical observations on the Lick Observatory Automated Planet Finder Telescope. With it we look for optical, as well as radio signals. This is particularly important in light of Project StarShot as we will be looking for laser signals similar to what we will be using to direct the StarChip interstellar probe. Indeed, we would be able to see a laser signal such as we are producing all the way across the universe if alien civilizations are doing similar missions.