COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Lamar Smith, Chairman

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Statement of Chairman Lamar Smith (R-Texas)
Astronomy, Astrophysics, and Astrobiology

Chairman Smith: The science of astronomy goes back millennia and is one of the oldest of the natural sciences. Astrophysics, the application of physics to understand the nature of the Universe, is a relativity new scientific field that has blossomed in the last few years.

Space-based observations from telescopes like the Hubble Space Telescope have amazed us for decades and the James Webb Space Telescope is only a couple of years away from launch. Recently, we have seen amazing discoveries of planets outside our solar system and the detection of gravitation waves. This is just the beginning.

Many more amazing discoveries await us. NASA's Chief Scientist, Dr. Ellen Stofan, recently testified before this Committee that, "[w]ith future technology and instruments currently under development, we will explore the solar system and beyond, and could indeed -- perhaps in as little as 10-20 years -- discover some form of life, past or present."

Since 1995, over 3,000 exoplanets have been identified, with several found to be in the "habitable zone" –where a planet with sufficient atmospheric pressure can maintain liquid water on its surface.

The Kepler spacecraft discovered many of these exoplanets and led scientists to estimate that as many as 11 billion rocky, earth-sized exoplanets could be orbiting in the habitable zones of Sun-like stars in the Milky Way alone.

Kepler's successes in hunting exoplanets will continue with the launch of the Transiting Exoplanet Survey Satellite (TESS) in 2017 and be augmented by the capabilities of the James Webb Space Telescope (JWST), the Wide Field Infrared Space telescope (WFIRST), and ground-based telescopes such as the Large Synoptic Survey Telescope (LSST). The LSST may be able to peer into the atmospheres of these exoplanets and conduct spectroscopy to determine the composition of their atmospheres.

While partnerships between the private and public sector in astronomy are well established, these ties need to be strengthened when it comes to exoplanet surveys and exploration related to astrobiology. Private sector groups like the Breakthrough

Listen project provide funding opportunities to leverage limited government funding to maximize discovery.

Going forward, I hope that NASA, NSF and academia will expand public-private partnerships to advance optical laser transmission surveys, as it is a promising and exciting field of inquiry.

I look forward to our witness's testimony today. With representation from the NASA, the NSF, the Astronomy and Astrophysics Advisory Committee, the American Astronomical Society, and the Breakthrough Listen Project, we have the opportunity to hear a number of perspectives on the subjects of Astronomy, Astrophysics, and Astrobiology.

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