

SMCAS General Meeting and Presentation on Feb 5, 2016

Dr. Lynn Rothschild

Senior Scientist, Astrobiology/Synthetic Biology
NASA Ames Research Center

Are We Truly Alone? The Search for Life in the Universe

Friday, Feb 5, 2016 , [College of San Mateo, Building 36](#)
SMCAS General meeting at 7:00 p.m. ISC Room, room 110
Presentation at 8:00 p.m. [Planetarium](#)
Free and open to the public, free parking.



Each recent report of liquid water existing elsewhere in the solar system has reverberated through the international press and excited the imagination of humankind. We have come to realize that where there is liquid water on Earth, virtually no matter what the physical conditions, there is life. Dr. Lynn Rothschild, an evolutionary biologist known for her work on life in extreme environments and a founder of the field of astrobiology, tells us about intriguing new data.

At NASA's Ames Research Center in Moffett Field, CA, she leads a program in synthetic biology and works with researchers in industry, government agencies around the world and in academia, including at Brown and Stanford University. The prevalence of potential abodes for life in our solar system and beyond, the survival of microbes in the space environment, modeling of the potential for transfer of life between celestial bodies, and advances in synthetic biology suggest that life could be more common than previously thought.

She is a fellow of the Linnean Society of London, The California Academy of Sciences and the Explorer's Club. In May she was awarded the Isaac Asimov Award from the American Humanist Association, and later this month will be the recipient of the Horace Mann Award from Brown University. She lectures frequently worldwide, including at the Vatican and Windsor Castle, and appears frequently on radio and television programs such as NPR, Science and Discovery channels.

Additional Biography

Dr. Lynn J. Rothschild is passionate about revealing the meaning of life in its environment on earth or elsewhere in the universe, while at the same time pioneering the use of synthetic biology to enable space



exploration. She believes that just as travel abroad permits new insights into our home, so too the search for life elsewhere has allowed a more mature scientific, philosophical and ethical perception of life on Earth. She wears these hats as a senior scientist NASA's Ames Research Center as well as an Adjunct Professor at Brown University, and the University of California Santa Cruz.

Her research has focused on how life, particularly microbes, has evolved in the context of the physical environment, both here and potentially elsewhere. She founded and ran the first three Astrobiology Science Conferences (AbSciCon), was the founding co-editor of the International Journal of Astrobiology, and is the former director of the Astrobiology Strategic Analysis and Support Office for NASA.

Current astrobiology research includes examining a protein-based scenario for the origin of life, hunting for the most radiation resistant organisms, and determining signatures for life on extrasolar planets. More recently Rothschild has begun to bring her creativity to the burgeoning field of synthetic biology, articulating a vision for the future of synthetic biology as an enabling technology for NASA's missions, including human space exploration and astrobiology.

Since 2011 she has been the faculty advisor of the award-winning Stanford-Brown iGEM team, which has pioneered the use of synthetic biology to accomplish NASA's mission, particularly focusing on the human settlement of Mars, astrobiology and such innovative technologies as BioWires and making a biodegradable UAV. Her lab is working on expanding the use of synthetic biology for NASA with projects as diverse as recreating the first proteins *de novo*, bioprinting to biomining, to using synthetic biology to precipitate calcite and produce glues in order to make bricks on Mars or the Moon. Her lab will begin to move these plans into space in the form of a synthetic biology secondary payload on a DLR satellite, EuCROPIS, scheduled to launch in March 2017.