

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Astrobiology and Exploration (6)

Author: Mr. Havishk Tripathi
Rutgers University, United States, havishk.tripathi@gmail.com

USING ABIOTIC GEO-BIOSIGNATURES IN THE SEARCH FOR COMPLEX LIFE ACROSS THE
UNIVERSE**Abstract**

Astrobiology is the study of life in space. One of the main goals in the field of astrobiology is to detect exoplanets that could inhabit complex forms of life. Biosignatures are the present-day attempt at capturing what constituents in science can infer signs of life. The challenge is to provide a definition that can be validated in a physical detection model, without discounting other possible locations. Galileo was the first attempt at detecting life but noted that the presence of certain chemistries is not itself a sign of life. Years later, current attempts such as the James Webb Telescope use advanced spectroscopic techniques and have more knowledge but face the same challenge: the incohesive definition of what a biosignature is. This research looks to reinvent biosignatures from a holistic perspective through abiotic, geological and chemical perspectives. This new definition, the abiotic geo-biosignature, provides a comprehensive analysis that can be validated for life detection. This can be implemented into developing novel space technology to help to identify potentially habitable exoplanets and eventually find signs of life across the universe.