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Interactive Presentations - 53rd IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps (IP)

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COGNITIVE FRAMEWORKS TOWARDS SOLVING THE FERMI PARADOX

Abstract

The Fermi Paradox remains an intriguing and open question in the fields of astrobiology and the search for extraterrestrial intelligence (SETI). It arises from the contradiction between the lack of observable evidence for advanced extraterrestrial life and the apparent high likelihood of its existence. In the 70 years since Enrico Fermi first posed his question, 'But where is everybody?' over 5,640 exoplanets have been detected, and current models predict billions more that are potentially habitable worlds across our galaxy. Ongoing and previous directed efforts in this search have yet to yield any indications of life or potential technosignatures.

This paper identifies and addresses key elements relevant to the future direction of SETI, outlining new cognitive frameworks to inform the pertinent next steps in the search for life in the universe. These frameworks are built by: 1) critically assessing past and current methodologies in SETI and astrobiology, 2) suggesting a new model of ETI classification based on variable understandings and definitions of life, 3) outlining key examples of potential bio- and technosignatures for each respective classification, and 4) discussing the relevant technologies and instruments required for each specific class of ETI, while drawing attention to current and future advances in instrumentation and computational capabilities.