Manasvi Lingam, Ph.D.

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Melbourne, FL, US

Dr. Lingam's research interests are primarily within the transdisciplinary areas of astrobiology.

About

After completing his undergraduate degree at the Indian Institute of Technology (Bombay), Dr. Lingam moved to the University of Texas at Austin, where he obtained his Ph.D. in Physics. He then undertook postdoctoral stints at Princeton University, Harvard University and the Harvard-Smithsonian Center for Astrophysics. Dr. Lingam is currently an assistant professor of astrobiology in the Department of Aerospace, Physics and Space Sciences at Florida Tech. Dr. Lingam's research interests are situated primarily within the transdisciplinary area of astrobiology. As a theorist, his research is mostly oriented towards: (a) exploring the multiple factors that regulate the habitability of planets and moons within and outside the solar system, and (b) identifying potential signatures of extraterrestrial life that might be detectable by forthcoming observations. For instance, Dr. Lingam has worked on determining how the available fluxes of nutrients and energy may dictate the productivity of putative biospheres and detectability of biosignatures on a wide variety of worlds ranging from desert and ocean planets to icy moons with subsurface oceans such as Europa and Enceladus. Another area of continuing interest is understanding how stellar processes such as winds, flares, coronal mass ejections and energetic particles govern planetary habitability in many ways, ranging from atmospheric escape to the synthesis of crucial molecules in prebiotic chemistry. He has also explored how high-energy phenomena shape the distribution of life in our galaxy by suppressing habitability (via active galactic nuclei, tidal disruption events, etc.) and how the number of life-bearing worlds is modulated by the transfer of life through rocky ejecta. As Dr. Lingam's Ph.D. and initial postdoctoral research was in plasma physics, he continues to work sporadically in this field. Some of the areas he has investigated include Hamiltonian and Lagrangian formulations for plasma models, developing fluid models that accurately encapsulate collisional effects, generation of small- and large-scale magnetic fields, magnetic turbulence (e.g., in the solar wind), and fast magnetic reconnection which is believed to drive explosive phenomena such as stellar/solar flares.

Areas of Expertise

Planetary Science, Plasma Physics, Astrobiology, Astrophysics

Education

The University of Texas at Austin
Ph.D. Physics

Indian Institute of Technology - Bombay
B.Tech. Engineering Physics