Manasvi Lingam (FL Insititute of Tech.)

Title: Stellar constraints on the habitability of exoplanets

Abstract: With the rapidly expanding number of exoplanets, understanding the manifold factors that shape (exo)planetary habitability has become increasingly significant. Although habitability is regulated by many planetary parameters, there is growing evidence that the host star plays a major role in this context. I will outline the research undertaken with my collaborators in the following areas: (1) atmospheric escape mediated by stellar winds and space weather (flares and coronal mass ejections); (2) synthesis of vital prebiotic molecules by stellar energetic particles; and (3) potential characteristics of extraterrestrial photosynthesis. Along the way, I will sketch some of the unresolved questions and topics that warrant further study.

Biography: Manasvi Lingam completed his BS in engineering at the Indian Institute of Technology (Bombay), and his PhD in Physics at the University of Texas at Austin. He subsequently pursued postdoctoral research in astronomy and physics at Princeton University, Harvard University, and the Harvard-Smithsonian Center for Astrophysics. Manasvi is currently an Assistant Professor in Aerospace, Physics, and Space Sciences at the Florida Institute of Technology, and an affiliate Research Fellow at UT Austin. His research interests include theoretical modeling of the habitability of planets and moons; space and astrophysical plasmas; and space exploration of the outer Solar System. In addition to many journal publications in these areas, he is the lead author of the graduate-level astrobiology monograph "Life in the Cosmos: From Biosignatures to Technosignatures".