PHYSICS & ASTRONOMY COLLOQUIUM

Date: Thursday, 28 March 2019
Time: 1:30 p.m.
Location: Physics & Astronomy Seminar Room 100

Dr. Evgenya L. Shkolnik
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Arizona State University

“Exploring Exoplanets and their Stars with the UV Space Telescopes of the Past, Present and Future”

ABSTRACT

Roughly seventy-five billion low-mass stars (a.k.a. M dwarfs) in our galaxy host at least one small planet in the habitable zone (HZ). The stellar ultraviolet (UV) radiation from M dwarfs is strong and highly variable, and impacts planetary atmospheric loss, composition and habitability. These effects are amplified by the extreme proximity of their HZs. Knowing the UV environments of M dwarf planets of all sizes will is crucial to understand their atmospheric composition and evolution, providing the needed context for measured exoplanet spectra; while for HZ terrestrial planet, characterization of the UV provides a key parameter in a planet’s potential to be habitable and discriminating between biological and abiotic sources for observed biosignatures. Our efforts to study the UV photometrically and spectroscopically of such planetary systems employ past, present and future space telescopes: the Galaxy Evolution Explorer (GALEX), the Hubble Space Telescope (HST), and the upcoming NASA-funded Star-Planet Activity Research CubeSat (SPARCS), due for launch at the end of 2021. SPARCS will be a 6U CubeSat completely devoted to continuous photometric monitoring of M stars, measuring their variability, flare rates and evolution, while also being a pathfinder for much-needed UV small satellites.

HOST: S. Metchev

COFFEE + light snacks will be available in the Atrium, 2nd floor, at 1:15 p.m.