

THE SOLAR SYSTEM BODIES: FROM OPTICS TO GEOLOGY (2008)

REGOLITH RADIATIVE TRANSFER AND RING PARTICLE EMISSIVITY. Sanaz Vahidinia¹, Jeff Cuzzi², Bruce Draine³. ¹UC Santa Cruz, 1156 high street Santa Cruz, CA 95064, Sanaz@physics.ucsc.edu. ²NASA Ames Research Center, ³Princeton University

Introduction: We are developing an improved regolith radiative transfer model (RRT) for multiple applications in remote sensing of planetary granular surfaces. Interpreting remote observations of granular bodies is an important tool in determining the surface composition of all solid bodies in the solar system. However, current models make simplifying assumptions which are valid to varying, and mostly unknown, degrees and which produce results which can differ greatly in their implications

about the actual surface. The main task at hand is developing a model that accounts for wavelength-size regolith particles which are closely packed and can be heterogeneous in composition. The first application of this model will be to simulate the wavelength-dependent emissivity of icy granular surfaces of Saturn's ring particles at mid and far infrared wavelengths for comparison with Cassini's Composite Infrared Spectrometer (CIRS) observations.