

THERMAL INFRARED OBSERVATIONS OF SEVERAL NEAR-EARTH ASTEROIDS

E. S. Howell¹, C. Magri², R. J. Vervack³, M. C. Nolan¹, Y. Fernandez⁴, A.
S. Rivkin³

¹*Arecibo Obs./Cornell University*

²*Univeristy Maine Farmington*

³*APL Johns Hopkins Univeristy*

⁴*Univeristy of Central Florida*

We have measured the thermal emission between 2-4 microns for several near-Earth asteroids (NEAs) of different taxonomic types. Our initial observations include P-type 53319 (1999 JM8), V-type 2006 VV2, E-type 2005 RC34, and 153591 (2001 SN263). Asteroid 2001 SN263 has a low albedo and is either C-type or P-type, and may have variable spectral slope. The NEA 2006 VV2 is also a binary system, and 2001 SN263 is a triple system. All these observations were made with SpeX using the NASA IRTF. The thermal emission has been modeled using both a standard thermal model, and a thermophysical model. We have chosen objects that have also been imaged by radar, and thus have shape models, including constraints by lightcurve observations whenever they are available. The scaled relative thermal flux, at different rotation phases, and different solar phase angles is fit to determine the best beaming parameter, thermal inertia and phase coefficient to match the observations. The best fit thermal model to the emission over this wavelength range is quite distinctive for the different objects. We will explore the differences in the models needed to fit the different objects, compared to the differences to fit the same object at different geometries. The extent to which the irregular shape affects the thermal emission will be assessed and presented.

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