Spitzer Observations of Comet Surfaces

Mike Kelley[1]

[1] *University of Central Florida (USA)*

We present Spitzer Space Telescope observations of comet surfaces. Three datasets will be reviewed: 1) a survey of 53 Jupiter-family comet nuclei at 16 and 22 microns (Fernandez et al. 2008, 10th ACM Meeting), 2) rotationally resolved observations of the nucleus of comet 67P/Churyumov-Gerasimenko at 8 and 24 microns (Kelley et al. 2008, in preparation), and 3) 7 to 35 or 14 to 35 micron spectra of several (likely bare) nuclei, including: 10P/Tempel, 49P/Arend-Rigaux, 67P/Churyumov-Gerasimenko, and Halley-type comet C/2002 CE10 (LINEAR) (Kelley et al. 2009, in preparation). We fit our data with the near-Earth asteroid thermal model. When we assume a low albedo and an infrared emissivity of 0.9, the mean infrared-beaming parameter for the survey is 0.94 $\pm$ 0.2. The comet spectra all have IR-beaming parameters of 0.9 to 1.0, except for 67P, which favors slightly lower values (approximately 0.7). We also review the evidence for emissivity features in the comet spectra.