

Abstract Submitted
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Light Scattering as a Diagnostic of Asteroid Structure ASHLEY

ESPY, BO GUSTAFSON, Uf Ast — With the identification of the Veritas family as the source of the 9.35 degree dust band of the Zodiacal cloud (Nesvory, et al. 2003), we are presented with a new means to study this family and its precursor asteroid. When an asteroid breaks up, the larger pieces remain together on similar orbits, but the smaller (sub-mm to micron) particles, experience a stronger perturbation from the solar radiation pressure and migrate to the zodiacal cloud. Light scattered by this corresponding dust band can yield information, on the structure of the material in the dust and thus also the precursor. Using the Microwave Scattering Facility (Gustafson 1996), models of these dust particles are created and the scattering intensities and polarizations measured. One hypothesis is that the Veritas precursor was NOT differentiated, but rather an aggregate of interstellar grains like the Bird's Nest model proposed by Greenberg and Gustafson (1981). If so, we expect to find structure in the dust on the scale of the interstellar grains. Else, if the precursor WAS fully or partially differentiated, then the bulk material in the dust should appear homogeneous or show structure on a larger scale.

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