

Optical properties of cometary coma and trail particles

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Though the composition of cometary nuclei is indicative of the material evolution in the solar nebula, most of our knowledge of the solid component in comets is derived from observations of the cometary dust, namely light-scattering and thermal-emission observations. Common characteristics of albedo and polarization are observed in dust from different comets and this stimulated the discussion of a comprehensive cometary dust model. On the other hand dust particles possibly fragment, volatile species sublime and, non-refractory materials undergo thermal processing once the dust is released from the comet. We suggest the change in properties may become apparent when comparing the observations of cometary comae and trails. Cometary dust trail particles are those particles observed along the orbit of the comet that were ejected during a previous perihelion passage. We focus our comparison on the comets 67P/ Tschurjumow-Gerasimenko, 2P/Encke, 10P/Tempel 2, and 22P/Kopff.

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