Karri Muinonen
University of Helsinki, Finland

"Scattering and absorption of light in planetary regoliths"

Scattering of light in a macroscopic particulate medium composed of microscopic particles is a challenging computational problem in planetary astrophysics. The challenge manifests itself in the absence of quantitative inverse methods to interpret fundamental astronomical observations of airless Solar System objects covered by regoliths, loose layers of dust particles of varying size, shape, and composition. Here, state-of-the-art theoretical, numerical, and experimental methods are reviewed, followed by their synergistic and successful application in the interpretation of photometric, polarimetric, and spectrometric observations of asteroids and other airless objects.