

Laboratory measurements of the reflectance phase curves of ordinary chondrite meteorites: A comparison with asteroids

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We have performed systematic measurements of bidirectional reflectance of three ordinary chondrite meteorites, NWA539 (LL3.5), Tuxtuac (LL5), and NWA542 (LL6) in order to compare them with the disk-resolved and the disk-integrated scattering property of S-class asteroids. The laboratory results on smoothed surfaces of the samples showed shallower phase curves than those of S-class asteroids. We found that there is a positive correlation between the surface roughness and the slope of the phase curves. A steeper reflectance phase curves of S-class asteroids than the laboratory data may therefore indicate that the surfaces of the asteroids have rougher structure than the surfaces we prepared for the measurements.