

Title: Dust trap for light scattering study

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Abstract: Light scattering on small grains is common interaction occurring widely in space environments, including Moon surface, dusty nebulas or even the upper atmosphere of the Earth. For experimental measurements of light scattering intensity profiles, we designed and constructed a unique experiment. Using so called acoustic trapping, we are able to capture a single dust grain (or small water droplet) in midair, to irradiate it with the laser beam, and to observe scattered light directly with the photodiode mounted on a precise goniometer. In the thesis, we present not only construction details, but also the first results, which help us to evaluate abilities of the experiment, and provide useful recommendations for further development of all dust-related experiments.

Keywords: light scattering, acoustic trap, dust grain, scattering measurement