



Development of plane-parallel impact-ionization dust detectors with large aperture

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We have been developing light-weight large-area dust detectors for space. Impact-ionization dust detectors on board HITEN and NOZOMI had a box-shape where volume/mass of a detector should be larger as increasing the target area. Here we have been testing plan-parallel type detectors with a target plate and an entrance grid. So far we tested three models with different target diameters: 5cm, 15cm, 30cm. In these types, volume/mass of a detector is basically proportional to its area. Using dust accelerators, we have tested these detectors and confirmed that all of them have enough capabilities to estimate mass and velocity of incoming dust particles. Currently we are planning to measure dust and debris particles at LEO using the surface unit on board the Space Station.