

Development of two dust electrostatic accelerators for planetary science in Japan

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Dust detectors onboard spacecraft have been calibrated by using dust electrostatic accelerators that can accelerate projectiles to expected mass and velocity ranges of micrometeoroids. In Japan, there was no such a facility dedicated to space science research until our research group was established several years ago. Therefore, we have developed two high voltage accelerators. One is a modified 3.75MV Van de Graaff Accelerator and the other is a 100kV accelerator dedicated to dust experiment. The particle velocity using the Van de Graaff accelerator is higher than those reported in other accelerator facilities under the same particle mass conditions. We have also constructed a 100kV accelerator designed for easier handling and lower cost operation which is dedicated to dust acceleration.

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