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## The measurements of restitution coefficient for glass beads at low collision velocity under microgravity.

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Some icy small bodies in the solar system have porous internal structure. Such porous structure may have been built through reaccumulation process of fragments once ejected by impact. In our previous study, we performed impact disruption experiments of porous sintered glass-beads targets and investigated the relation between static strength plus internal structure and impact strength of porous small bodies. Since restitution coefficient of the beads is one of the basic data for future numerical simulation of the impact process of sintered glass beads, we conducted measurement of the restitution coefficient under microgravity.

The experiments were performed twice at ZARM Drop Tower in Bremen on Nov. 12, 2010. There is a tube 110 m in height inside the tower. During the experiments the tube was evacuated under 10 Pa. In this work, we chose the catapult operation to obtain longer duration of 9.3 seconds under microgravity of  $10^{-5}$  to  $10^{-6}$  g. One of three pairs of sample folder and high-speed camera fixed in the sample chamber was used. The sample folder was filled with 32 beads of 4.7 mm in diameter. The collision images were taken through a beam splitter by the high-speed camera with frame rate of 500 frames/s and shutter speed of 1/5000 s. The restitution coefficient of the beads was obtained from the analyses of the images with two different projections and the calculation of collision velocity for each collision with the three-dimensional coordinate data.