

METEOROID AND DEBRIS IMPACT FLUX IN LOW EARTH ORBIT WITNESSED BY THE TANPOPO CAPTURE PANELS ONBOARD THE ISS IN 2015-2017

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Twenty-three pairs of silica aerogels and aluminum covers consisted of the Tanpopo capture panels were optically investigated and over 200 hypervelocity impacts signatures were identified and documented for further detailed analyses.

Among them, a low Ca-pyroxene micrometeoroid was captured intact inside the 10mg/cc density silica aerogel. In particular, we compared these data from both space and ram pointing faces of the Tanpopo panels exposed on the International Space Station for deducing meteoroid impact flux by taking into account of effects of local shielding and secondary ejecta impacts. This direct measurement showed that the micrometeoroid impact flux in low Earth orbit in 2015-7 are generally consistent with the previous post-retrieval measurements of LDEF, EuReCa, and SFU in 1980' s to 1990' s.