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Capture of High-Speed Interstellar Dust Analogues in Stardust Flight Spare Aerogel.

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We present the results of laboratory calibration campaigns designed to determine the effects of particle density and composition on the dimensions of tracks created by hypervelocity dust grains impacting Stardust [1] flight spare aerogel collectors. Tracks created by dust grains from minerals (olivine, orthopyroxene) and latex (poly-[bis(4-vinylthiophenyl)sulfide]) with conductive coatings (platinum or polypyrrole) have been examined and track diameter correlated with impact velocity and particle material.

The analogue tracks and terminal particles are compared with the currently identified Stardust ISPE candidates, indicating that only one particle was captured at the expected speed for an interstellar dust particle of the expected size, with the other particles captured at significantly lower speeds.

[1] Brownlee, D. E. et al. (2003) JGR 108, 8111/1–15.

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