Abstract Submitted
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Large bouncing jets[1] KARL CARDIN, MARK WEISLOGEL, Portland State University — We experimentally investigate the phenomena of large jet rebound (bounce), a mode of fluid transfer following oblique jet impacts on hydrophobic surfaces. We initially seek to describe the regimes of such jet bounce in tests conducted in the weightless environment of a drop tower. A parametric study reveals the dependence of the rebound mode on the relevant dimensionless groups such as Weber number $We_\perp$ defined on the velocity component perpendicular to the surface. We show that significantly larger diameter jets behave similarly as much smaller jets demonstrated during previous terrestrial investigations when $We_\perp \approx 1$. For $We_\perp > 1$, large jet impacts create fishbone-like structures. We also explore rebounds from nonplanar substrates. Improving our understanding of such jet rebound opens avenues for unique transport capabilities.

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