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Animating Impacting Spheres with the Elastic Leidenfrost Effect[1]

SCOTT WAITUKAITIS, ANTON SOUSLOV, MARTIN VAN HECKE, Univ of Leiden — Liquid droplets impacting on hot surfaces above the Leidenfrost temperature can squeeze out the vapor layer and enter the contact boiling regime. What happens to soft but vaporizable solids, such as hydrogel spheres, under such conditions? I will show how this combination leads to sustained bouncing dynamics. The key physics is the coupling between the sphere's elastic deformations and vaporization. Beyond being a new facet of the Leidenfrost effect, this phenomenon promises to be useful in fields such as fluid dynamics, microfluidics, and active matter.

[1]NWO Veni and Vici Programs

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