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**The Leidenfrost transition for drops on micro- and nano-textures**

HYUK-MIN KWON, Massachusetts Institute of Technology, JAMES BIRD, Boston University, KRIPA VARANASI, Massachusetts Institute of Technology — When a liquid drop contacts a sufficiently hot surface, the drop can float on its own vapor in a process known as the Leidenfrost effect. Although it has been observed that the Leidenfrost transition temperature varies with the physical properties of the heated surfaces, the precise mechanisms that set this transition are still not fully understood. Here, we examine the mechanisms for drops contacting a heated surface with well defined micro and nano-textures. We rationalize our experimental results with a scaling model, and subsequently use this model to make predictions that we test experimentally.

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