

Abstract Submitted  
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**Self-organization of levitating droplets over a dry heated substrate**<sup>1</sup> VLADIMIR AJAEV, Southern Methodist University, DMITRY ZAITSEV, DMITRY KIRICHENKO, OLEG KABOV, Institute of Thermophysics, Russia — Levitating droplets of liquid condensate are known to organize themselves into ordered structures over hot liquid-gas interfaces. We report experimental observation of similar behavior over a dry heated surface. Even though the life-time of the structure is shorter in this case, its geometric characteristics are remarkably similar to the case of droplets levitating over liquid-gas interfaces. A simple model is developed that predicts the mechanisms of both droplet levitation and inter-droplet interaction leading to pattern formation over dry surface; the model is shown to be in excellent agreement with the experimental data. Using the insights from the new experiments, we are able to resolve some long-standing controversies pertaining to the mechanism of levitation of droplets over liquid-gas interfaces.

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