Abstract Submitted for the DFD15 Meeting of The American Physical Society

Transferring heat during a bounce SAMIRA SHIRI, JAMES BIRD, Boston University — When a hot liquid drop impacts a cold non-wetting surface, the temperature difference drives heat transfer. If the drop leaves the surface before reaching thermal equilibrium, the amount of heat transfer may depend on the contact time. Past studies exploring finite-time heat exchange with droplets focus on the Leidenfrost condition where heat transfer is regulated by a thin layer of vapor. Here, we present systematic experiments to measure the heat transferred by a bouncing droplet in non-Leidenfrost conditions. We propose a physical model of this heat transfer and compare our model to the experiments.

> Samira Shiri Boston University

Date submitted: 30 Jul 2015

Electronic form version 1.4