

Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Drop impact on superheated surfaces TUAN TRAN, ERIK-JAN STAAT, ANDREA PROSPERETTI, CHAO SUN, DETLEF LOHSE, PHYSICS OF FLUIDS, UNIVERSITY OF TWENTE TEAM — We let millimeter droplets impact on superheated smooth surfaces. Depending on the impact velocity and the surface temperature, the droplet either immediately boils under spray formation when it contacts the surface (“wet boiling”), or without any surface contact forms a Leidenfrost vapor layer towards the hot surface and bounces back (“gentle film boiling”), or even breaks up in the middle during that process so that it basically immediately vaporizes (“violent film boiling”). We experimentally determine the phase diagram and qualitatively account for the transitions between the different regimes.

Detlef Lohse
Physics of Fluids, University of Twente

Date submitted: 27 Jul 2011

Electronic form version 1.4