

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Anti-fogging surfaces TIMOTHE MOUTERDE, PMMH, ESPCI / LadHyX, Ecole Polytechnique, ANTONIO CHECCO, Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, CHARLES BLACK, ATIKUR RAHMAN, Center for Functional Nanomaterials, Brookhaven National Laboratory, CHRISTOPHE CLANET, DAVID QUR, PMMH, ESPCI / LadHyX, Ecole Polytechnique — Achieving an anti-fogging material is more challenging than achieving an anti-rain material. A relevant way to investigate the resistance to fog consists of depositing hot water on a cold surface. We show that classical superhydrophobic surfaces with micron-size microstructures lose their superhydrophobic behaviour due to vapour condensation. To understand this phenomenon, we measured the adhesion force of hot water drops on different substrates and propose a quantitative description of this force generated by condensation. Our main result is that reducing the scale of the structures can strongly promote antifogging properties.

Timothe Mouterde
PMMH, ESPCI / LadHyX, Ecole Polytechnique

Date submitted: 31 Jul 2015

Electronic form version 1.4