Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Dissolution of Droplets on a Substrate with Engraved Concentric Rings JOSE MANUEL ENCARNACION ESCOBAR, ERIK DIETRICH, PENGYU LV, HAROLD ZANDVLIET, XUEHUA ZHANG, Physic of Fluids Group, University of Twente, STEVE ARSCOTT, Institut dElectronique, de Microelectronique et de Nanotechnologie of the University of Lille, DETLEF LOHSE, Physic of Fluids Group, University of Twente, UNIVERSITY OF TWENTE TEAM, UNIVERSITY OF LILLE TEAM, MCEC TEAM — The nucleation of nano and micro sized drops and bubbles often occurs on catalytic surfaces lowering its efficiency. The contact angle hysteresis, which is a consequence of the pinning on heterogeneities of the surface, can dramatically affect the stability and lifetime of the drop. The stability of a surface bubble can, in fact, be theoretically calculated thanks to the assumption of the pinning of the bubble [Lohse and Zhang, Lohse, D.; Zhang, X., Phys. Rev. E 2015, 91, 031003.]. Our experiments try to shed light on the understanding of the pinning of droplets caused by micro structures during their dissolution. It is possible to predict the depinning angle of a drying drop as a function of the geometry of the defect and the receding contact angle. Additionally, the jump from one defect to another happens fast but is not an immediate change. This dewetting happens showing the so called zipping behavior. We present quantitative data from experiments as well as the experimental techniques used, including confocal microscopy and the first analysis and comparison with the already existent theoretical models.

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Date submitted: 01 Aug 2016 Electronic form version 1.4