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Drop Impact onto Polarized Dielectric Surface for Controlled Coating[1] ABHILASH SANKARAN, JINGWEI WU, VITALIY YURKIV, FARZAD MASHAYEK, ALEXANDER YARIN, University of Illinois at Chicago — Control of surface wettability by means of electrowetting or electrowetting-on-dielectric (EWOD) are among the most effective methods of active enhancement of surface wettability by liquids. The effectiveness of application of the electric field during drop impact is of importance for variety of coating and spraying technologies. Electrohydrodynamics of drop impact onto a dielectric surface with electrodes embedded in it is experimentally investigated. Water drop impact onto stretched Teflon and un-stretched Parafilm surfaces is studied. The results indicate that drop spreading on such non-wettable surfaces can be significantly enhanced with the electric field application. In particular, drop rebound can be suppressed by the electric forces.

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