

Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Breakup of electrified drops ROBERT COLLINS, JEREMY JONES, MICHAEL HARRIS, OSMAN BASARAN, Purdue University — A drop that is subjected to an electric field is a situation of common occurrence in nature and technology. Well known examples of drops subjected to electric fields include raindrops in thunderstorms and aqueous drops dispersed in an organic solvent in electrically-driven solvent extraction. A field of sufficiently high strength destabilizes such drops. The dynamics and disintegration of the drops are investigated here using a combination of simulation and experiment. The disintegration of the parent drop into daughter drops is analyzed and shown to accord well with experimental measurements. The implication of the findings to other fields, e.g. soft lithography, is also discussed.

Osman Basaran
Purdue University

Date submitted: 03 Aug 2007

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