

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Electrohydrodynamics of toroidal droplets**

ALEXANDROS FRAGKOPOULOS, ERIC BERGER, Georgia Institute of Technology, EKAPOP PAIRAM, King Mongkut's Institute of Technology Ladkrabang, ALBERTO FERNANDEZ-NIEVES, Georgia Institute of Technology — Toroidal droplets are unstable and always transform into spherical droplets due to surface tension. This can happen via Rayleigh-Plateau instabilities, or via the shrinking of the handle. Interestingly, charging a toroidal droplet can cause expansion, rather than shrinking, of the handle. In this talk, we will discuss the use of particle image velocimetry to obtain the velocity profile inside both neutral and charged toroidal droplets as they transform into the spherical shape. In particular, we quantify the effect of surface stresses on the velocity field and, consequently, on the shape of the interface as the droplet evolves by either shrinking or expanding.

Alexandros Fragkopoulos  
Georgia Institute of Technology

Date submitted: 05 Nov 2015

Electronic form version 1.4