

Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

A novel method of producing stable emulsions via electrified W/O interfaces BEHNAM SADRI, University of Alberta, PEJMAN TABATABAEE-HOSSEINI, BABAK VAJDI HOKMABAD, MEHDI REZAYATI CHARAN, ESMAEIL ESMAEILZADEH, University of Tabriz, MULTIPHASE FLOW GROUP TEAM — In the current paper a vertical electric field was induced to the liquid interface to make thin jets from the conical tip structures. By the means of this jet dispersion a novel method of emulsification of water drops in dielectric medium was represented. Experiments reported in this paper enable a comprehensive illustration of introduced mechanism for the emulsification. The important aspects of an emulsion production were investigated through produced droplets properties, including their movement velocity, and size distribution. Variation of mentioned parameters was investigated with the conductivity throughout various electrolyte ion concentration additions to the dispersed phase. Experiments show that, conductivity augmentation antedates the stable cone-jet formation to the lower electric fields. Furthermore, it reduces the stability duration of emulsified drops due to increasing in polydispersity and coalescence rate.

Behnam Sadri
University of Alberta

Date submitted: 20 Jul 2012

Electronic form version 1.4