1060-76-211 **John A Pelesko*** (pelesko@math.udel.edu), University of Delaware, Department of Mathematical Sciences, Newark, DE 19716. *Current Results on the Interaction of Electric Fields with Soap Films.*

G.I. Taylor began the field of electrohydrodynamics with a study of the interaction of electric fields and soap films. In particular, he examined the deflection of circular films in a highly symmetric situation under the application of a D.C. field. This work has found application in the area of microelectromechanical systems (MEMS), which also uses this simple concept as a motive force. This has led to extensive developments in the theory of such deflections. However experimental work now lags behind theory. In this talk, we outline recent efforts to rectify this situation and indicate areas where new mathematical efforts are needed. (Received March 30, 2010)