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Travelling Wave Electro-Osmosis: Nonlinear Double Layer Analysis and Application To Pumping of Liquid ANTONIO GONZÁLEZ, ANTONIO RAMOS, University of Seville, ANTONIO CASTELLANOS — Steady motion of aqueous solutions can be produced through ac electro-osmosis, due to the coupling between ac fields and the induced charge at the double layer close to microelectrodes. Continuous unidirectional fluid motion can be obtained when the solution is placed on top of an array of microelectrodes subjected to a travelling wave potential. In this paper we consider a simple model, consisting of a single mode travelling wave, and its extension to an square wave signal. To describe the double layer we use the nonlinear Gouy-Chapman theory. A numerical solution is obtained for this model, and the results are compared with experiments.

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