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Low frequency ionic conduction across liquid interfaces. FRANCISCO J SOLIS, Arizona State University, GUILLERMO IVAN GUERRERO, Universidad Autnoma de San Luis Potos, MONICA OLVERA DE LA CRUZ, Northwestern University — Ionic conduction in liquid media is a central component of many recently proposed technologies. As in the case of solid state systems, the presence of heterogeneous media gives rise to interesting nonlinear phenomena. We present simulations and theoretical analysis of the low frequency ionic conduction in a two-liquid system. In the case analyzed, the conduction is driven by an electric field perpendicular to the liquid-liquid interface. We show that the dielectric contrast between the liquids produces non-linear effects in the effective conductivity of the system and discuss the effects of the ion solubility in the media.

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