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Electrohydrodynamic instabilities of biomimetic bilayer membranes JACOPO SEIWERT, PETIA VLAHOVSKA, Brown university — Living cells actively maintain electrochemical potentials across their membranes, which regulates cell migration, motility, and development. In this presentation, we focus on the effect of an external electric field on membrane dynamics. We present a physical model for the dynamic coupling between transmembrane potential and deformation of biomimetic membranes. We perform linear stability analysis to clarify and quantify the effects of the lipid bilayer properties (conductivity and capacitance), and asymmetry in the embedding electrolyte solutions, on membrane deformation.

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