

Abstract Submitted  
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**Differential Impurity Transport in the Presence of an External Potential**<sup>1</sup> ELIJAH KOLMES, IAN OCHS, NATHANIEL FISCH, Princeton Univ  
— We discuss a generalization of the classical impurity pinch to include the effects of external potentials. This allows us to describe a smooth transition between the behavior of different particle species in thermodynamic equilibrium and the pinch that we encounter in a magnetically confined system. It also allows us to predict the behavior of a variety of systems that are in steady state but not in thermodynamic equilibrium; external potentials can either increase or mitigate the pinch, depending on the context. These effects could have practical implications for a variety of different plasma devices. We are particularly interested in the effects of rotation and of electrostatic potentials.

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