**Maximum-Entropy States for Cross-Field Differential Ion Transport**[1] ELIJAH KOLMES, IAN OCHS, MIKHAIL MLODIK, NATHANIEL FISCH, Princeton University — For a plasma with a collision operator that conserves energy, particle number, and momentum, the Boltzmann distribution is the state of maximum entropy. In a strongly magnetized, quiescent plasma, the motion of net charge across field lines is strongly suppressed. The addition of a constraint on net cross-field charge transport leads instead to the classic impurity pinch relation as the maximum-entropy state. This more general derivation makes it possible to define a broad class of collision operators which will lead to the impurity pinch.

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