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Particle Tracing and Confinement Analysis in the Harris Sheet SHOUZHUO YANG, MICHAEL BROWN, Swarthmore College, ADAM LIGHT, Colorado College — We are interested in plasma particle properties in the Harris Sheet geometry, which is a good approximation for the interface of merging two relaxed Taylor states in SSX. We then seek to characterize the confinement properties of the Harris Sheet. We first use the Boris Algorithm to solve for the motion of the particle due to static electric and magnetic fields, and verify the calculation using an axisymmetric spheromak configuration. After generating $\sim 10^5$ protons with 10^2 velocities drawn from the Maxwellian distribution and applying Boris Algorithm, we find particles generally gain energy as they sample the sheet electric field, and a small fraction of the particles stay confined.

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