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Particle Confinement Structures in Relaxed Taylor States MIRIAM MOORE, M. R. BROWN, Swarthmore College, A. D. LIGHT, Colorado College — We study the orbits of particles confined in a relaxed Taylor state plasma. We seek to characterize the surfaces along which these particles move, which are significantly less studied than those in axisymmetric field configurations. We simulate motion for particles with many varying initial conditions of position and velocity, then characterize the surfaces upon which their orbits lie. We evaluate the magnetic field by solving the eigenvalue equation $\nabla \times \mathbf{B} = \lambda \mathbf{B}$ with the PSI-Tet program. We then simulate particle motion by using the Boris algorithm to solve the Lorentz force law equation of motion. The Boris code has been verified by simulating particle orbits in axisymmetric configurations with known paths (wire, dipole, spheromak).

Miriam Moore
Swarthmore College

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