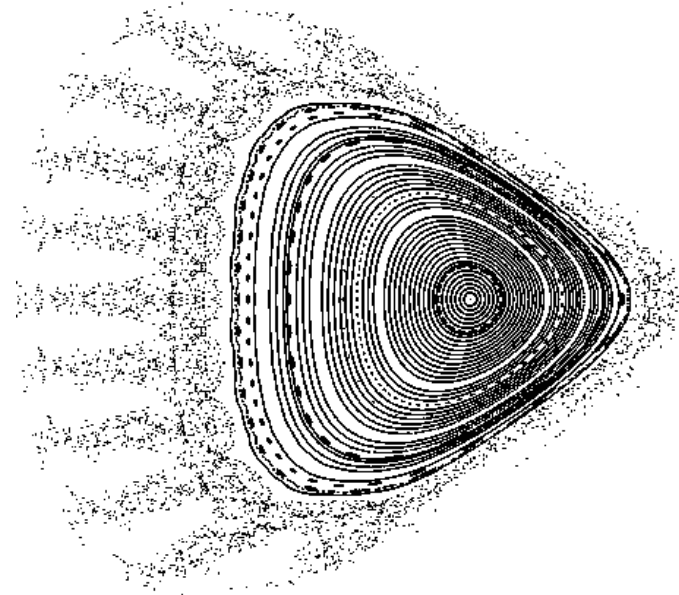# 3D Equilibria with Magnetic Islands

Monticello, Reiman, Raburn

- Have developed helical Grad-Shafranov solver that can handle magnetic islands.
  - Benchmark PIES. (FY07 – 08)
  - Testbed for new algorithms, esp. Jacobian-Free Newton Krylov. (FY07 – 08)
- PIES
  - Improving physics model in response to W7AS comparisons (pressure in stochastic region). (FY07)
  - Speed up via algorithm improvement FY(07 – 08), parallelization (FY09), development of PIES-Lite for rapid evaluation. (FY10)
  - Plan to incorporate neoclassical model (FY07 – 09), flow-shielding model (FY08 – 09)

Poincare plot for PIES W7AS equilibrium.