**Critical Issue: Development of Predictive Numerical Simulation Codes**

**Response of Tokamak Plasma to Nonaxisymmetric**

**Magnetic Perturbation**

* Codes require verification and validation.
	+ Cross-benchmarking required for verification.
	+ Dedicated machine time required to generate data for validation.
* Six codes cross-benchmarked against data from a DIII-D shot.
	+ Double null shot (“stellarator-symmetric”) allows participation by full range of stellarator equilibrium codes.
	+ Shot from ELM stabilization study has small nonaxisymmetric perturbation

**(),** allowing participation of tokamak perturbative equilibrium codes.

* Disagreement between VMEC and tokamak perturbative equilibrium codes: apparently due to differences in handling of localized currents near rational surfaces.
* Further progress requires comparison with experiment.
	+ Dedicated set of experiments performed on DIII-D over the course of one day in May, 2014.