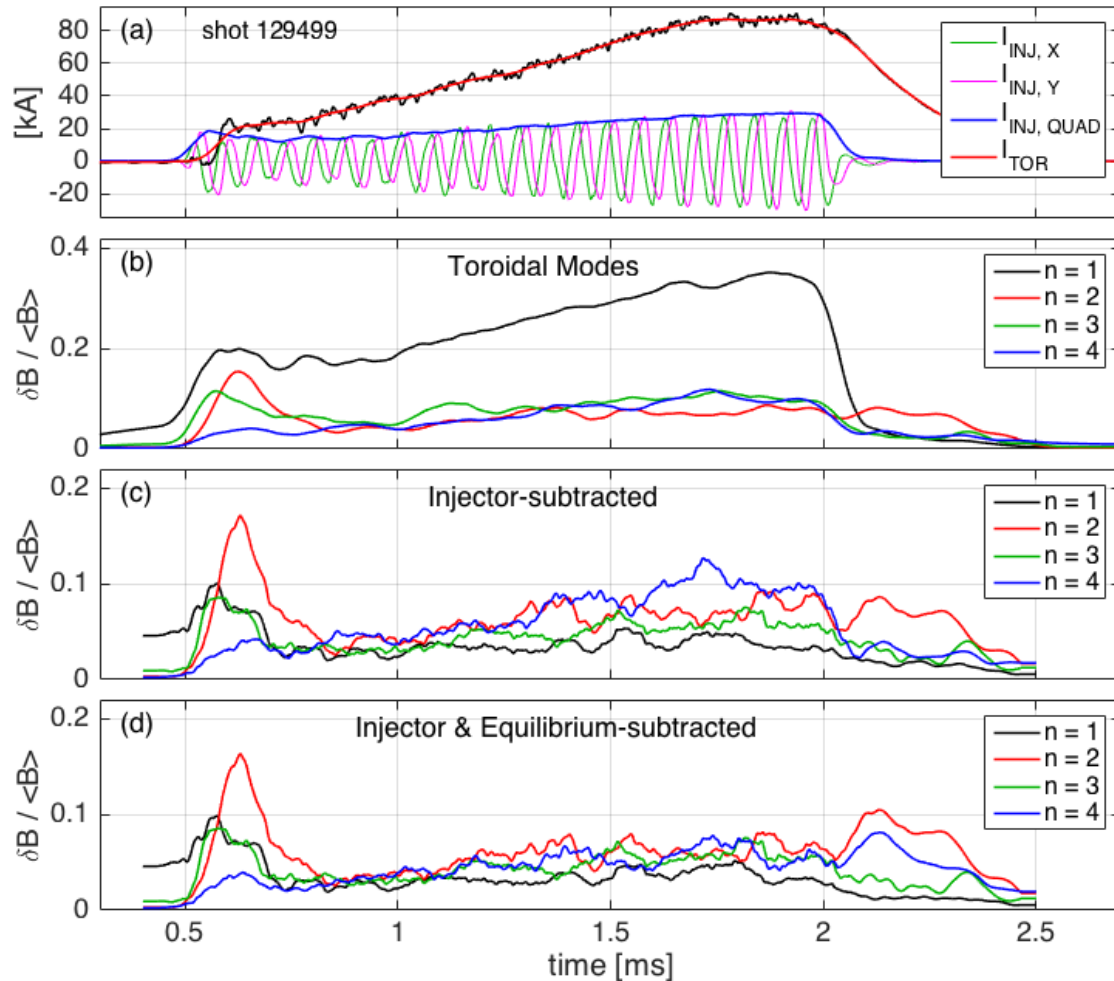
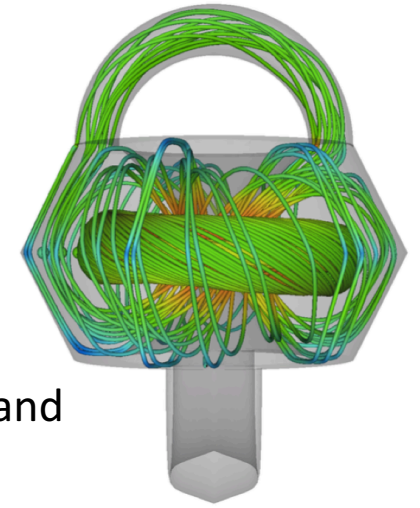


The HIT-SI experiment demonstrates stable sustainment of spheromak plasmas

By imposing a $\lambda = \mu_0 j / B$ gradient and nonresonant, $n=1$ perturbations spheromaks are sustained without plasma-generated instabilities.

Right: Streamlines of injector-linking flux surrounding spheromak flux (center).



Left: (a) oscillating injector currents form and sustain spheromak with 90 kA toroidal current, (b) Measured Fourier mode structure has large $n=1$, (c) after subtracting injector-correlated signals almost all $n=1$ shown to be imposed by injectors, (d) nonaxisymmetric components of equilibrium subtracted to show small plasma-generated modes.

- Doppler spectroscopy shows coherent, imposed plasma motion indicating stability
- HIT-SI3 with different injector geometry and imposed $n=2$ and 3 perturbations can excite plasma-response