Comparison Between Measurements of the Poloidal Distribution of Magnetic Fluctuations and Theoretical Models During TAE Activity

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Fluctuations produced by beam-driven toroidicity-induced Alfvén eigenmode (TAE) activity in the DIII-D tokamak are measured by a poloidal array of magnetic probes and compared with the wave fields computed by two theoretical models. Fluid-resistive models compute continuum-damped TAE modes. A kinetic plasma model that retains Landau damping and finite Larmor radius effects computes global drift-kinetic Alfvén eigenmodes. The phases of the probes disagree with both theoretical predictions, while the amplitudes agree best with the kinetic model.