

# Measurement, Characterization, and Suppression of Instabilities in the PFRC-2 Device

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The Princeton Field-Reversed Configuration-2 (PFRC-2) device is an experiment to investigate aspects of FRC reactor design that include confinement, RF-heating, stability, fueling, ash-exhaust and power-handling issues. When exploring modes of operation, we observe several saturated instabilities, presenting as oscillations in plasma parameters measured by interferometry, Langmuir probes, high-speed visible light photography, and RF power coupling. These oscillations vary in relative amplitude from <1% (local and global) to >30% (global), and in frequency from 5kHz to hundreds of MHz. We present data showing that these oscillations can be either extinguished or dramatically suppressed by changing the background magnetic field, increasing the Rotating Magnetic Field (RMF) antennae power, and puffing neutral gas into the FRC region. In this presentation, the oscillations and thresholds implied by the above measures are characterized, and relevance to a potential FRC-based fusion power plant is discussed.