

Abstract Submitted
for the DPP00 Meeting of
The American Physical Society

Sorting Category: 6.6.2 (Theoretical)

Magnetic Helicity is Conserved at a Tokamak Sawtooth Crash¹ T.H. DANG, W.W. HEIDBRINK, University of California, Irvine — The sawtooth instability causes sudden changes in magnetic topology during combined neutral beam and fast wave heating in the DIII-D tokamak. Measurements with a Motional Stark Effect diagnostic provide accurate determination of the equilibria before and after the sawtooth reconnection events. The global magnetic helicity $\int \vec{A} \cdot \vec{B} dV$ changes $0.2 \pm 0.9\%$ at a sawtooth crash. The local change in helical flux, χ , is roughly consistent with the Kadomtsev² model within large errors. The volume in which the helical flux changes is $85 \pm 15\%$ of the volume predicted by Kadomtsev, while the central value of χ is within 1% of the predicted value.

¹Work supported by General Atomics Subcontract SC-G903402 to U.S. DOE Contract DE-AC03-99ER54463.

²B.B. Kadomtsev, Sov. J. Plasma Phys. **1** (1975) 389.

☐
☒

Prefer Oral Session
Prefer Poster Session

W.W. Heidbrink
wwheidbr@uci.edu
University of California, Irvine

Special instructions: MHD, immediately following I Semenov
--

Date submitted: July 12, 2000

Electronic form version 1.4