Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Effects of different strapping field profiles on plasma loop expansion[1] BAO NGUYEN QUOC HA, PAUL BELLAN, Caltech — The hoop force causes arched, current-carrying plasma loops to expand unless additional forces are applied. This expansion was slowed and even inhibited by a magnetic field of proper polarity in previous solar coronal loop experiments [1] but there was no attempt to reproduce the slow expansion to fast eruption behavior often exhibited by solar loops. The transition from a slow expansion to a fast eruption is predicted to depend on the strapping field altitude decay profile [2] which is sensitive to the planar distance to the source of the strapping field [3]. The coils are mounted on 3 axis adjustable stands that provide precision placement of the coil relative to the plasma. Preliminary data on the interaction between the plasma and specified strapping field profiles will be presented.

[1] J. F. Hansen and P. M. Bellan, Astrophys. J. Lett. **563**, L183 (2001)
[2] B. Kleim and T. Torok, Phys. Rev. Lett. **96**, 255002 (2006)
[3] Y. Wang and J. Zhang, ApJ **665**, 1428 (2007)

[1]Work supported by the NSF and AFOSR.

Bao Nguyen Quoc Ha
Caltech

Date submitted: 18 Jul 2011 Electronic form version 1.4