

Abstract Submitted  
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**Laboratory experiments on Alfvén and kink modes in an arched magnetized plasma**<sup>1</sup> SHREEKRISHNA TRIPATHI, WALTER GEKELMAN, Univ of California - Los Angeles — In a recently upgraded laboratory plasma experiment, dynamics of an arched magnetized plasma has been explored with a particular focus on Alfvén and global kink modes that exist in solar prominences and coronal loops. The arched plasma ( $\beta \approx 10^{-3}$ , Lundquist number  $\approx 10^2$ - $10^5$ , plasma radius/ion-gyroradius  $\approx 20$ ,  $B = 1$  kGauss at footpoints, Length  $> 0.8$  m) was created using a lanthanum hexaboride (LaB6) plasma source. It evolved in an ambient magnetoplasma produced by another LaB6 source. The experiment runs continuously with a 0.5 Hz repetition rate. Plasma parameters are recorded with excellent resolution using movable Langmuir and three-axis magnetic-loop probes. Images of the plasma are recorded using a fast-CCD camera. The kink-mode oscillations were observed as transverse oscillations across the symmetry plane of the arched plasma. The relative magnitudes of parameters of the arched and ambient plasma were varied to simulate varieties of conditions relevant to the sun. We examine the relevance of theoretical models of kink-modes and study the dispersion of Alfvén waves in the presence of an electrical current. References: (1) Tripathi and Gekelman, Phys. Rev. Lett. 105, 075005 (2010) (2) Tripathi and Gekelman, Solar Phys. 286, 479 (2013)

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