

Abstract Submitted  
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**Laboratory Simulation of Instabilities in the Earth's Magnetotail<sup>1</sup>**

SANDRA WRIGHT, RADU PRESURA, STEPHAN NEFF, CHRISTOPHER PLECHATY, PHILIPPE LEBLANC, Nevada Terawatt Facility, University of Nevada, Reno — The solar wind crosses the magnetic field of the earth and mixes with the plasma of terrestrial origin. The fast particles from the solar wind are responsible for satellite damage, communication disruptions and power blackouts on earth. A better understanding of this penetration process is needed in order to be able to accurately predict it. One experiment attempting to accomplish this was performed at the Nevada Terawatt Facility. This utilized the coupling of a short-pulse laser with a pulsed-power generator to study the interaction of a laser produced plasma with an independently produced magnetic field. The magnetic field induced a sheared flow along the boundary of the plasma plume which caused a Kelvin-Helmholtz instability similar to that found in the interaction between the solar wind and the magnetosphere that leads to the penetration of the fast particles. The instability produced in the experiment will be discussed along with its relevance to the solar wind/magnetosphere interaction.

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