

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Alfvén Wave Heating of Argon Ions in the Hot hELicon eXperiment (HELIX) at West Virginia University STEPHANIE SEARS, MATTHEW GALANTE, DUSTIN MCCARREN, SAEID HOUSHMANDYAR, EARL SCIME, West Virginia University — Alfvén wave damping is the dominant physical process invoked in leading theoretical models of ion heating in the solar corona. The construction of a new external antenna by the West Virginia University helicon source group to launch large-amplitude ($B_1 \sim 10\%$ of B_0) shear Alfvén waves in argon plasma provides a new experimental tool to investigate ion heating due to the damping of these waves. The ion temperatures are measured with Laser Induced Fluorescence (LIF) while magnetic sense coils are used to measure the phase velocity and amplitudes of the propagating waves. Here we present completed design schematics for the antenna as well as analysis of the launched waves and resonant ion heating results.

Stephanie Sears
West Virginia University

Date submitted: 15 Jul 2010

Electronic form version 1.4