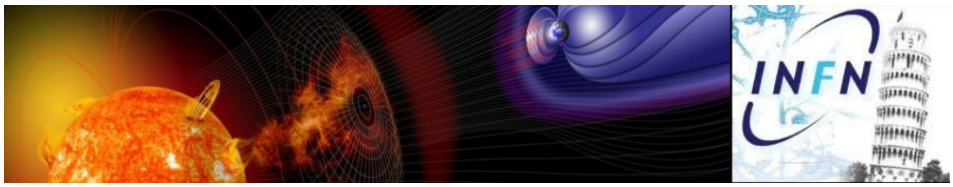

Contribution ID: **27** Type: **not specified**

The Role of Magnetic Geometry on Hydrodynamic Response in Flaring Loops

Thursday, 8 July 2021 18:35 (50 minutes)

In simulations of flaring loops, it is almost universally assumed that the loop is semi-circular with constant cross-section. Observations with many imagers, however, clearly indicate that loops are often elliptical. Furthermore, the decreasing magnetic field strength from photosphere to corona requires that loops expand in cross-section. In this work, we conduct a series of simulations examining the plasma response to beam heating under the effects of elliptical geometry and area expansion. We find that, for strong heating events, the eccentricity of a loop is relatively unimportant, while area expansion, including the magnitude of increase, the rate of increase, and the location of increase, can drastically impact the resultant densities, temperatures, and cooling times of the loop.

Email

Jeffrey.reep@nrl.navy.mil

Primary authors: Dr REEP, Jeffrey (US Naval Research Laboratory); Dr UGARTE-URRA, Ignacio (US Naval Research Laboratory); Dr WARREN, Harry (US Naval Research Laboratory); Dr BARNES, Will (NRC Postdoc at US Naval Research Laboratory)

Presenter: Dr REEP, Jeffrey (US Naval Research Laboratory)

Session Classification: Working Group 1: Flare thermal response

Track Classification: Working Group 1: Flare thermal response