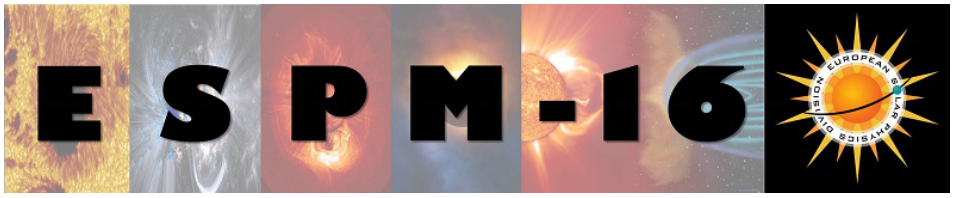

Contribution ID: **420** Type: **Poster**

Large-amplitude Prominence Oscillations following Impact by a Coronal Jet

Wednesday, 8 September 2021 14:13 (13 minutes)

Observational evidence shows that coronal jets can hit prominences and set them in motion. The impact leads to large-amplitude oscillations (LAOs) in the prominence. We attempt to understand this process via 2.5D MHD numerical experiments. The jets are generated in a sheared magnetic arcade above a parasitic bipolar region located in one of the footpoints of the filament channel (FC) supporting the prominence. The shear is imposed at velocities not far above the observed photospheric values; this leads to a multiple reconnection process, as obtained in previous jet models. Both a fast Alfvénic perturbation and a slower supersonic front preceding a plasma jet are issued from the reconnection site; in the later phase, a more violent (eruptive) jet is produced. The perturbation and jets run along the FC; they are partially reflected at the prominence, and partially transmitted through it. This results in a pattern of counter-streaming flows along the FC, and oscillations in the prominence. The oscillations are LAOs (i.e., with amplitudes above 10 km s−1) in some areas of the prominence, both in the longitudinal and transverse directions. In some field lines, the impact is so strong that the prominence mass is brought out of the dip and down to the chromosphere along the FC. Two cases are studied, with respect to arcades at different heights above the parasitic bipolar region, leading to different heights for the region of the prominence perturbed by the jets. The oscillation amplitudes and periods are in general agreement with the observations.

Student poster?

Primary authors: LUNA, Manuel (Universitat de les Illes Balears); Prof. MORENO-INSERTIS, Fernando (Instituto de Astrofísica de Canarias (IAC))

Presenter: LUNA, Manuel (Universitat de les Illes Balears)

Session Classification: Poster Session 7.2

Track Classification: Session 2 - The Solar Atmosphere: Heating, Dynamics and Coupling