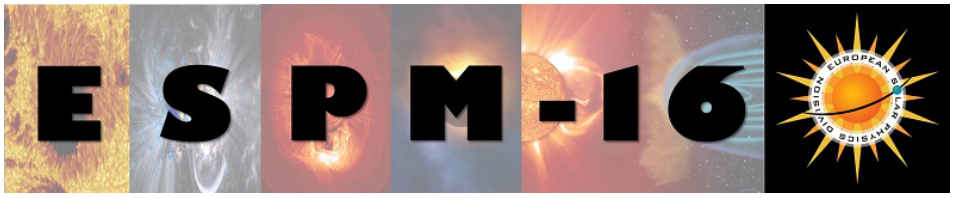

Contribution ID: **227** Type: **Poster**

NuSTAR observations of a quiet Sun minifilament eruption

Tuesday, 7 September 2021 10:18 (13 minutes)

We present a unique set of observations of a confined minifilament eruption from the quiet-Sun during solar minimum. The Nuclear Spectroscopic Telescope Array (NuSTAR) spotted a tiny, compact hard X-ray (HXR) flare on 2019 April 26, peaking about 02:06UT lasting for a few minutes, finding brief emission >5MK. Observations with SDO/AIA and Hinode/XRT show this HXR emission was due to a tiny flare arcade underneath a confined minifilament eruption –behaviour similar to those seen in both major active-region filament eruptions and minifilament eruptions that lead to coronal jets. This eruption occurred near disk-centre, so the Earth orbiting observatories provide a top-down view of the event, but fortuitously a side-on view is obtained from STEREO-A/SECCHI, giving a clearer sense of eruption geometry. Line-of-sight magnetograms from SDO/HMI show that this eruption is due to opposite polarity flux moving together and cancelling and not due to flux emergence. We also explore the possibility of non-thermal emission due to accelerated electrons from the HXR observations of this tiny quiet Sun impulsive energy release.

Student poster?

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Session Classification: Poster Session 3.2

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