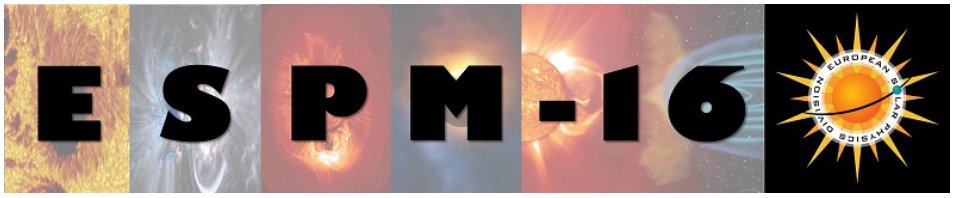


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# Coronal dimmings as a diagnostics for solar and stellar CMEs

*Monday 6 September 2021 12:03 (13 minutes)*

Coronal dimmings are sudden decreases of the solar EUV and X-ray emission caused by coronal mass ejection (CMEs). Dimming regions map to the bipolar ends of closed magnetic field lines that become stretched or temporarily opened during an eruption, and are a result of the depletion of coronal plasma caused by the expansion and mass loss due to the CME. Recently available multi-point imagery from satellites at different locations in the heliosphere provided us with unprecedented observations of the three-dimensional evolution of solar CMEs and their coronal dimmings. These studies showed distinct correlations between CME mass and speed with key parameters of the associated coronal dimmings such as their spatial extent and intensity drop (Dissauer+ 2019, Chikunova+ 2020). Here, we study Sun-as-a-star broad-band EUV light curves derived from SDO's Extreme ultraviolet Variability Experiment (EVE) as a testbed to study whether coronal dimmings can be also observed on stars and used for stellar CME detection. We demonstrate that large eruptive flares are with a high probability associated with a post-flare coronal dimming, with intensity drops in the 15-25 nm full-Sun light curves up to 5%. Searching for similar patterns of post-flare dimmings in the X-ray and EUV light curves of solar-like and late-type stars, we identify 21 stellar CME candidates, which is more that all previous reports of stellar CMEs. The derived intensity drops are an order of magnitude larger than for the Sun, suggesting that a substantial part of the stellar corona gets ejected by the CME.

## Student poster?

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