



Characterisation of Off-Limb Coronal Bright Fronts Observed with SDO/AIA

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Shocks associated with Coronal Mass Ejections (CMEs) in interplanetary space are known to accelerate ions to multi-MeV/nuc energies, creating solar energetic particles (SEPs). In the last five years, there have been multiple EUV observations of coronal bright fronts (CBFs), which may be the coronal counterparts of interplanetary shocks. However, it is not presently known how efficient these low-coronal shocks are in accelerating particles to SEP energies. We investigate a number of CME events over a period from 2010-2014, using an automated algorithm to measure the kinematics of the associated CBFs in data by the Atmospheric Imaging Assembly (AIA) instrument on board the Solar Dynamics Observatory, as well as ground-based radio observations. We focus on off-limb events, since they allow for better determination of the three-dimensional structure of CBFs. Using a new suite of analysis tools, we automatically compute velocities and accelerations of the observed CBFs. We perform analysis of shock evolution and particle acceleration efficiency using data-driven magnetic field observations and differential emission measure modeling.