



## **Solar filament eruptions and their physical role in triggering Coronal Mass Ejections**

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Both filaments and CMEs have been related to twisted magnetic fields. Therefore, nearly all the MHD CME models include a twisted flux tube, called a flux rope. Either the flux rope is present before the eruption, or it is built up by reconnection of a sheared arcade from the beginning of the eruption.

Combining observations of SDO and STEREO and CME theoretical models we have investigated different mechanisms initiating eruptions :

new emergence of flux, shear motions, and dispersion of the external magnetic field, and/or reconnection of field lines below or above the flux rope. Their impacts is mainly to break the overlying magnetic tension and/or to favor the rise of the flux rope until the torus instability. We used the MHD simulation (OHM) as a tool to explain the different phases of eruptive flares: e.g. postflare loops. The prediction of enhancement of electric current during reconnection is confirmed in the observations.