



Stellar CMEs from an observational point of view

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Stellar activity is mainly characterized by the high energy phenomena such as outbreaks of radiation (flares) and sporadic expulsions of particles into the astrosphere termed coronal mass ejections (CMEs). Both phenomena are known to cause space weather in our solar system. On stars, flares and their parameters are well determined, in contrast to CMEs; their parameters are still not determined statistically. Both phenomena may have severe effects on planetary atmospheres and, in addition, stellar CMEs may play an important role in stellar mass and angular momentum loss and therefore in stellar evolution. Flares are directly detectable from photometric observations, whereas the detection of CMEs requires different observational methods. CMEs have different signatures in different wavelength regimes. Most of the stellar CMEs were detected so far using the method of Doppler-shifted Balmer flux which is accessible via spectroscopic measurements. Several observational programs have been carried out and are planned for the future, including new observations and archival data. Also several attempts to detect stellar CMEs via radio emission have been carried out in the past decades. Finally, the X-ray regime may provide a valuable data pool to look for so-called dimmings, well-known from the Sun, which are closely related to CMEs and which are detectable in X-ray light curves. So far stellar CMEs have been detected rarely and only a handful of distinct events is known, mainly for dMe stars. We report on past, ongoing and future campaigns of stellar CMEs on F-, G-, K-, and M-type pre- and main-sequence stars.