

High resolution spectra of flare M-dwarfs

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Flare stars are generally observed using low resolution spectrographs in order to detect flares with a temporal resolution as higher as possible. However, high resolution spectra are needed to determine other properties of these stars as their kinematic (radial velocity), rotational velocity ($v \sin i$), age (Li I $\lambda 6708 \text{ \AA}$ line), and to study in detail the chromospheric emission line profiles. In this contribution we analyze high resolution echelle spectra of several M-dwarfs classified as flare stars (UV Cet type). The wavelength range of the observations includes the optical chromospheric activity indicators Ca II H & K, H ϵ , He I 4026 \AA , H δ , H γ , H β , Mg I b triplet, He I D₃, Na I D₂ & D₁, H α and Ca II IR triplet, as well as other metallic lines that could be in emission during flares. We study in detail all these spectral features, both the line emission and profile. The dependence on the age and rotation rate of the level of chromospheric activity in the quiescent state is also analyzed.