PID:PT2022_0137

Abstract:

We propose to observe four flare stars. Coherent radio bursts from M dwarf flare stars display a rich variety of structures in dynamic spectra (time-frequency plane), which can be used to clarify the physical processes in stellar coronae. These stellar bursts were found to have high brightness temperatures, high circular polarization, and/or narrow bandwidth. These features indicate coherent emission mechanisms, plasma radiation or electron cyclotron maser instability (ECMI). Fine structures in the dynamic spectra of these bursts, obtained from high time resolution observations, can help identify the emission mechanism. It would further constrain either plasma density or magnetic field strength in the source region (Dulk 1985, Treumann 2006).