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Abstract:

Past radio observations have uncovered highly polarized radio emission on stars, which is generally believed to resemble the planetary aurora in our solar system. Two mainstream mechanisms have been proposed, the co-rotation breakdown and star-planet interactions, which are applied to interpret the periodic radio emission on fast-rotating ultracool dwarfs and planet-hosting stars, respectively. Meanwhile, there have been many radio transients found on nearby flaring stars which do not show clear periodicity. Some researchers take them as a consequence of frequent stellar flares while others prefer that they are aurora-like events likewise. We plan to carry out follow-up observations on nearby flaring stars based on observations in PT2021_0019. A number of radio transients were spotted on flaring stars AD Leo, which were manifested as different kinds of fine structures. Following searches on radio transients in other stars are imperative to reveal the physics behind them. Combined observations in radio, optical and X-ray bands may also help to identify the origin of the peculiar radio emission.