## M29b Investigating differences of magnetic fields in Solar active regions that produce eruptive and confined flares

Ichiro Goto (ISEE, Nagoya University), KD Leka (NWRA, USA and ISEE, Nagoya University), Kanya Kusano (ISEE, Nagoya University)

Solar flares and coronal mass ejections (CMEs) are massive eruptions in the solar corona. Because they may impact geospace and social infrastructures, their prediction is important. Although larger flares are more likely to be accompanied by CMEs, some flares, even X-class flares, are not accompanied by CMEs. Hence, the relationship between flares and CMEs is not fully understood, and it is difficult to predict CMEs' occurrence accurately. Recently, Liu et al. (2022) analyzed the evolution of the twist parameter $\alpha$ in eruptive and confined flare regions averaged for a flare-ribbon-defined region of interest (ROI). They showed that for CME-producig flare events, this averaged $\alpha$ tends to decrease before flare onset and increase immediately after the flare onset, whereas it does not show such behavior in confined flares, and remains almost constant. We investigate the causes of this different behavior. We hypothesize that high-$\alpha$ regions become concentrated near the magnetic polarity inversion line (PIL) before flares. We test this hypothesis through analysis of the change in the distribution of $\alpha$ values and the distance of high-$\alpha$ regions to the PIL and extending the analysis to include additional targets. Initial results confirm the proposed concentration, but show that the behavior of averaged $\alpha$ may depend on the choice of ROI.