M40a **Statistical Analysis on Flaring Active Regions of the Sun**

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It is widely accepted that solar flares are produced via magnetic reconnection in sheared magnetic structures in active regions (ARs). In this work we study the statistical properties of large flares. We analyzed all flares with GOES SXR magnitudes greater than M5.0 with heliocentric angles of $<45^\circ$ in the period from May 2010 to September 2015. These constraints led to a total of 51 flares from 29 ARs. Utilizing the SDO/HMI and AIA data sets, we found that (1) about 10% of all the analyzed ARs violated Hale's polarity rule, as opposed to only a few % for all ARs (Wang & Sheeley 1989), (2) the flare durations (FWHM time and e-folding decay time of the GOES SXR light curves) were linearly proportional to the separation between the two flare ribbons in positive and negative polarities, and (3) the ribbon area became larger with the duration. Moreover, (4) for the flares of the same magnitudes and durations, the CME-poor events were generally produced from larger regions compared to the CME-productive ones. If we assume that the ribbon separation reflects the length of the reconnected loops, Result (2) may indicate that the time scale of the flares is determined by the Alfvén transit time over the loop. Result (3) may simply show that as more magnetic flux is involved, the reconnection processes continue longer, while Result (4) may indicate that larger ARs have stronger overlying fields that inhibit the successful filament eruption (Sun et al. 2015). In our data sets, most of the flares ($\sim 80\%$) were from δ-shaped ARs. The formation of such complex ARs will be investigated in our future theoretical studies.