[구SS-03] Classification of Ellerman bombs

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Ellerman bombs(EB) are small-scale bright features observed best in the wings of H alpha line. We used the Fast Imaging Solar Spectrograph(FISS) with the 1.6m New Solar Telescope at Big Bear Solar Observatory, in order to investigate characteristics of each EB. We analyzed H alpha line profiles of EBs, and classified EBs by their contrast profiles. To analyse characteristics of EBs, we applied power-law fitting ($C = a\Delta\lambda^{-n}$) to the EB contrast profiles. The amplitude a is a measure of the strength of an EB event (or the amount of released energy), and the power-law index n is a measure of spatial concentration of energy in the higher layers of the solar atmosphere. With the two parameters, we classified EBs into a few groups. We try to understand the physical properties of each group.

[구SS-04] A Fine-scale Half Ring-like Structure around a Pore

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We studied a fine-scale half ring-like structure around a pore seen from the high spectral and the high spatial resolution data. Our observations were carried out using the Fast Imaging Solar Spectrograph (FISS) and the InfraRed Imaging Magnetograph (IRIM) installed at the 1.6 meter New Solar Telescope of Big Bear Solar Observatory (BBSO) on 2012 July 19. During the observations, we found a fine-scale half ring-like structure located very close to a pore (~0.4 arcsec apart from the pore). It was seen in the far wing images of the Hα and Ca II 8542Å lines, but it was not seen in the line center images of two lines. The length of the structure is about 4200 km and the width is about 350 km. We determined its line-of-sight velocity using the Doppler shift of the centroid of the Ti II line (6559.6Å, close to the Hα line) and determined horizontal velocity using the NAVE method. we also investigated the magnetic configurations using the Stokes I, Q, U, and V maps of the IRIM. As a results, we found that it has a high blue-shift velocity (~2km) faster than the photospheric features and has a strong horizontal component of the magnetic field. Based on our findings, we suggest that it is associated with small flux emergence, which occurs very close to the pore. Even though it is very small structure, this kind of magnetic configuration can be in chare of the upper chromosphere heating, especially above the pore.