Time Dependent Flare Signaturc in Hydrogen Balmer Lines*

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Canfield et.al.(1993) suggested use if Ha emission line profile for dis criminating between the Ha emission caused by precipitaing high energy particles(EP) and that due to high cornal pressure(HP). Leka et al.(1993) and de la Beaujardiere et.al. (1993) have implemented this spectral diagnostics to seperate the region of EP and that of hp based on data of Ha imaging spectroscopy.

In the present work, we address the same problem but with time resolution offered by the multi-chancel spectrograph at Nanjing University which was used for hydrogen Balmer line observation of the white-light flare occurred in NOAA 6981 on Oct.27.1991. It is found that the Balmer emission lines with central reversal, the signature of ep, are forst seen at the maximum phase and then the single-peak line profiles, the signature of hp, follow. We also found a weak absortion feature to the blue side that accompanies the hp profile.

On the basis of the relative position of the slit to the continuum and Ha brightening, it is argued that the wp event and the hp event are cospatial and that the observed change of spectral line profiles with time should reflect a casual relationship between them. The absorption feature shown up to the blue side is interpreted as duw to cooling off of overlying material moving upward along the magnetic tube in the ep region, which in line with the Dopplergram observation. Overall dynamical picture conjectured from the present results is in good agreement with the "erupting filament model" for solar flares.

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Bright Part of Halo Luminosity Fuction Based on NLTT Proper-Motion Stars

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Luminosity fuction for field hako stars is essential for study of galaxy formation and evolution and as well as galactic structure study, but not yet uniquely determined. A recent work of Dahn et al.(1995) provides so far the best result for faint part if luminosity fuction from 64 parallax subdwarfs.

In this study we have derived the bright part of that utilizing Ryan(1991)'s photometric data for~1755 NLTT stars. Among them 233 stars are found to be halo stars with tangential velocity larger than 220km/sec brighter than m_v=12.3 V/Vm method is applied to those stars and correction for hangential velocity limit, 0.514 is