consists of Quasi-optics system, 4.2Kelvin Dewar and SIS mixer has been designed.

We have designed SIS mixer block with fixed backshort cavity, instead of movable backshort tuning elements for wide band impedence matching.

The Nb/Al-Al0x/Nb junction for mixer was fabricated by SNEP (Selective Niobium Etching Process) method and tested I/V characteristic.

And also we have theoretically investigated the performance of receiver noise temperature using 3-frequency approximation.

The theoretical receiver noise temperature is 30K(DSB) within 85-115GHz.

태양 홍염의 CCD 분광관측 연구

박 영 득

한국표준과학원 천문대

윤 홍 식, 김 정 훈

서울대학교 천문학과

1992년 8월 5일부터 8월 30일까지 일본 국립 천문대 부설 노리쿠라 코로나 관측소에서 태양 홍염의 CCD 분광 관측을 수행하였다. 사용된 망원경은 25cm 코로나그라프였으며, 쿠데형 분광기에 부착된 CCD의 pixel size는 12 micron이며, 분광 분해능은 H-alpha선의 경우 약 0.026A/pixel이다.

관측한 line은 주로 He10830 휘선의 시간에 따른 강도 변화였으며, 홍염의 높이를 달리하며 H-alpha선 및 CaII H & K선의 관측을 일부 수행하였다. 분석한 line은 8월 16일과 8월 27일에 관측한 홍염의 H-alpha line을 중심으로 도플러 속도의 변화를 살펴 보았다. 8월 16일의 홍염은 비교적 조용한 홍염이고, 8월 27일의 홍염은 활동성 홍염으로 두 홍염에서 얻어진 도플러 속도 편이를 중심으로 물질의 운동상태를 유추하고자 한다.

Analysis of I and V Profiles of Fe I λ 6302.5 Line from a Sunspot

Kil, Hyo Sub and Yun, Hong Sik

Department of Atronomy, Seoul National University

Circular polarization measurements of Zeeman sensitive Fe I 6302.5 line are analyzed to obtain the magnetic field distribution over a sunspot(SPO 5007). The photographic density on a film is traced by PDS at Korea Astronomy Observatory and the measured density is converted to relative intensity by IRAF. The classical Unno's solution(1956) has been employed to interpret our reduced Stokes profiles of Fe I 6302.5 line. The field strength is found to be about 3000 gauss at the center of the spot, which decreases outward with the

distance from the center. The inclination of the field lines is turned out to be somewhat higher than we expected. The field distribution over the sunspot(SPO 5007) fits best to the empirical model suggested by Wittmann(1974).

Multicolor CCD Surface Photometry of Globular Clusters

Young-Jong Sohn, Mun-Suk Chun Hong-Seo Im
Department of Astronomy and Atmospheric Science, Yonsei University, Korea
Yong-Ik Byun
Institute for Astronomy, University of Hawaii, U. S. A.

In order to investigate the radial distributions of color and luminosity in the central regions of globular clusters, we have analyzed a set of UBV CCD images for 10 southern globular clusters, which were obtained from the 40-inch telescope at Siding Spring Observatory in May 15 and August 18, 1991. Among the ten, seven clusters show clear indication of color gradients; NGC 6266, NGC 6584, NGC 6681 with redder centers and NGC 104, NGC 2298, NGC 6637, NGC 7099 with bluer centers. The amplitudes of color variation is typically around 0.1 magnitude for B-V color. We also classify half of our sample clusters at post-core-collapse family based on the power law cusp in their surface brightness profiles. The other half have flat cores which are very well fitted by conventional King's model. In contrast to Djorgovski et al.(1991)'s claim of co-occurance of cusp and bluer cores, we find cases which conflict with such hypothesis. Using the same CCD frames, we have derived accurate color and magnitudes for all resolved stars brighter than V = 18.5 magnitude. Combined with radial profile information, the CM data set is being used to test possible population changes across globular clusters.

Ages of Old Stellar Populations in the Galaxy

Lee, Young-Wook
Yonsei University Observatory

Recent observations suggest that the peak of the metallicity distribution for RR Lyrae variables in the Galactic nuclear bulge is more metal-rich than that found in the halo of the Galaxy. It is shown that this is what one would expect if the radial variation in horizontal-branch morphology observed in the halo continues to the very center of the Galaxy. Interpreted as an age effect, as supported by recent work, this provides evidence, for the first time, that the oldest stellar population (i.e., RR Lyraes) in the Galactic nuclear