교 분석함으로써 조선왕조실록에 기재된 혜성 관측 자료의 사실성과 독자성을 판별하고 그에 대한 천문학적 의의를 살펴본다.

Washington CCD Photometry of The Bulge Globular Cluster NGC6624

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We present Washington CCD photometry of NGC 6624 which lies in the very central region of the Galaxy. The color-magnitude diagram of this cluster shows clumpy red horizontal branch and well defined gently-sloping giant branch, and the color-magnitude diagram of the nearby comparison field shows the bulge and disk populations.

We have estimated the metallicities of the cluster giants using the two-color diagrams, obtaining a value for the mean metallicity of [Fe/H] = -0.56 ± 0.14 dex.

The distance of NGC 6624 is determined using the HB brightness of NGC 6624, which is $T_1(HB) = 15.51\pm0.10(V(HB)=16.09\pm0.10)$. The absolute HB magnitude of NGC 6624 is estimated using the calibration $M_V(RR)=0.82\pm0.17[Fe/H]$, to be $M_V(RR)=0.72$. Assuming $E(B-V)=0.26$, the distance modulus of NGC 6624 is derived to be $(m-M)_0=14.51\pm0.12$ ($d=8.09\pm0.37$kpc) and the coresponding galactocentric distance is $R_{GC}=1.27$kpc. The metallicity of NGC 6624 we derived os consistent with the [Fe/H]-R_{GC} relations of the globular clusters in our Galaxy.

Fitting the isochrone to the HST data obtained by Sosin & King [1995, AJ, 109, 639], we estimate the age of NGC 6624 to be $t=13\pm2$ Gyrs. This value is much smaller than the estimate by Richtler et al [1994, A&A, 290, 412], 18 Gyrs. The difference between these two estimates appears to be primarily due to the different metallicities used in the two studies. The age of 13 Gyrs we derived here is smaller to those of other bulge globular clusters(NGC 6553, NGC 5927).

On the Profiles and the Polarization of Raman Scattered Emission Lines in Symbiotic Stars

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A Monte Carlo method is used to calculate the profiles and the polarization of the Raman scattered O VI lines ($\lambda\lambda$6827, 7088) in symbiotic stars, which are believed to be a binary

system of a cool giant and a hot star with an emission nebular around it. A point-like isotropic UV radiation source is assumed and a simple spherical wind model is adopted for the kinematics of the scattering material from the cool giant. We first investigate the case where the incident line is given by a Gaussian having a width of 10^4K. The synthetic profiles and polarization structures are also obtained for several schematic UV line profile.

In the case of the Gaussian UV source, the scattered line profiles are asymmetric to the red due to receding atoms from the hot star and a large degree of polarization perpendicular to the binary axis is obtained in the blue part of the scattered feature. Around the line center, however, the polarization direction changes and the degree of polarization increases as the scattering optical depth increases. The synthetic profiles for a triangular double-peaked incident source are obtained and the polarization behavior turns out to be similar to that of the Gaussian case.

Brief observational consequences are discussed and it is concluded that spectropolarimetry may provide a powerful diagnostic about the physical condidions of symbiotic stars.

A Low State Eclipse Spectrum of Hercules X-1 Observed with ASCA

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We analyzed the ASCA data of Her X-1 obtained during the EXTENEDE LOW intensity state on 1993 August 13 and August 28. Both observations cover orbital phases ranging from 0.7 to 1.25 including an X-ray eclipse. We find that the eclipse spectrum is modeled by a single power-law with a photon index of 0.8 plus a soft black-body of kT ~ 0.1 keV in the energy range of 0.5-10 keV. The estimated eclipse flux is $(8.1\pm0.6)\times10^{-12}$ erg $cm^{-2}s^{-1}$(2-10 keV). The spectral shape is consistent with that obtained from the eclipse data of the MAIN HIGH with Ginga, although the flux is reduced by a factor of 3. Similarity of the eclipse spectra between the LOW and HIGH state suggests the presence of a steady circumstellar matter surrounding the Her X-1 system. We interpret the flux reduction in the LOW state due to time variations of the X-ray scattering site.

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