

On the Polarization of Raman Scattered O VI Lines in Symbiotic Stars

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We calculate the phase function and the polarization of the broad emission features around $\lambda 6830$ and $\lambda 7088$ observed in symbiotic star systems, which are believed to be Raman scattered O VI $\lambda 1032, 1038$ doublets by atomic hydrogen. Due to the nearness of the O VI photons to the Ly β , the resonance effect is strong and the polarization behavior is similar to that of the resonance scattering case between $J = 1/2$ state and $J = 3/2, 1/2$ degenerate states. The density matrix associated with the Raman scattered photon is calculated using the time-dependent perturbation theory.

The maximum degree of polarization for the right angle scattering is shown to be $p_{\max} = 0.2838$ for $\lambda 1032$ photon and a value of $p_{\max} = 0.2932$ is obtained for $\lambda 1038$ photon. The phase function $R(\mu) \propto 1 + p_{\max} \mu^2$ are more isotropic than the Rayleigh phase function. Observational consequences are briefly discussed.

Effects of the Post-*RGB* stars on $H\beta$ index of star clusters

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We present the variations of $H\beta$ index strengths of star clusters due to the Post-*RGB* stars. Most of the Previous works have been done without careful considerations of the Post-*RGB* stars. Since the Balmer line strengths are very susceptible to the temperature - strongest at around 10,000K -, using the correct post-*RGB* stars, especially Horizontal-Branch(HB) stars are quite important. We estimate the equivalent width(EW) of $H\beta$ absorption lines of star clusters at random ages and metallicities. We find that the strength of $H\beta$ lines increase as clusters' metallicities decrease for colors become blue. However, it doesn't just increase but it shows a peak at certain metallicities due to the variations of HB morphologies of clusters as they age.

산개성단 NGC 6531의 CCD UB V 측광

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산개성단의 광도함수와 질량함수에 관한 연구의 일환으로 호주 국립대의 사이딩스피링 천문대 1M 망원경으로 NGC 6531의 CCD(UB V) 측광을 수행하여 색-등급도를 얻었다.

분광형이 알려진 별들중 A0보다 조기형 별들의 관측 자료로부터 성간 소광에 무관한 Q인자를 구하고 이 인자를 이용하여 성간 적색화량을 결정하였다. 이 성단의 성간적색화량은 $0.29(\pm$