

## Radial Stellar Distribution within a Globular Cluster

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3 globular clusters (47 Tuc, M68 and Pal 12) were examined to find out any radial gradient of stellar distribution. Among them 47 Tuc and Pal 12 show the radial colour gradient in a sense of the inner region is redder than the outer one. However M68 reveals the marginal colour variation with the bluer inner region than the outer one. We discussed these colour variations with the radial stellar distribution among these globular clusters.

## The Simultaneous Solutions for Photometric and Spectroscopic Observations of TX UMa

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The light curves for one epoch and radial velocity curves for three epochs of TX UMa have been collected for simultaneous solutions. The light curves and the radial velocity curves have been analyzed to find preliminary photometric and spectroscopic solutions respectively, with the Wilson and Devinney Differential Correction method. One of the radial velocity curves makes it possible to deduce the ratio (F1) of surface rotation rate to synchronous rotation rate for the primary star is not a unit, i.e. non-synchronous rotation. However we assumed the F1 is a unit (synchronous rotation) in the photometric solution. Thus the potentials adjusted in the photometric solution should be readjusted because the surface potentials corresponding to a given mean radius and the critical (lobe-filling) potentials are different from the synchronous value. Also other several parameters are function of both light curve and radial velocity curve. Therefore the light curves and radial velocity curves were combined to adjust the parameters which are function of both curves for simultaneous solutions. The parameters adjusted in both curves were the rotation rate, inclination, potentials, mass ratio and light. The absolute dimensions and the evolution of TX UMa were discussed based on the simultaneous solutions.

## HR 1170의 주기 해석

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$\delta$  Scuti 불안정 영역의 다주기 변광성인 HR 1170의 uvby측광이 소백산 천문대의 24인치 반사 망원경을 통하여 1988년 9~12월 사이에 이루어졌다. 광전자 증배관은 청색광에 민감한 EMI 9635B를 사용하였고 DC방법으로 관측하였다. 총 자료의 수는 475개이고 관측 자료(차등 등급)의 오차는 0.01<sup>m</sup>보다 작다.

Power spectrum과 비선형 회귀(nonlinear regression) 방법으로 구한 HR 1170의 주기는  $f_1=10.06134c/d$ (c/d: cycles per day),  $f_2=11.91754c/d$ ,  $f_3=18.96776c/d$ 이다. 주기비  $f_1/f_2=0.844$ 로