$k_{2v}=-0.065\pm0.042, \quad k_{2bv}=0.065\pm0.022, \quad k_{2ub}=-0.025\pm0.014.$

(3) The total observational errors resulting from various sources like single observational, extinction, instrumental and reduction error are $\sigma_V=0.018, \quad \sigma_B=0.022, \quad \sigma_U=0.031.$

UBV Photometry of Parallax Stars*

See-Woo Lee, Dong Woo Kim,

Tae Hoon Park and Jin Woo Yu

Seoul National University

This is a progressive report on an observational program at the Department of Astronomy, Seoul National University. We have performed photoelectric photometry for about 80 stars at Sobaeksan Observing Station, Korean National Astronomical Observatory. Among these, 40 are parallax stars with known proper motion. We will examine distributions of the forty program stars at the solar neighborhood on two-color diagram and theoretical HR diagram. We will also discuss some physical properties of these stars.

Chemical Evolution of Interstellar Cloud

Kap Sung Kim

Korean National Astronomical Observatory

Gas phase chemistry in molecular cloud is investigated which includes over 455 reactions for 100 species. Numerical solutions are obtained for nonlinear differential equations governing the time dependence of atomic, ionic and molecular abundances in interstellar clounds. The system is solved through the density range $100<n<10^6$ cm^{-3} for a gas containing the elements, H, He, C, O, H, Mg, Si, S, Fe. Chemical reactions and rate coefficients are taken from the chemical literature on interstellar chemistry used by Mitchell, Ginsburg and Kuntz.

Physical Conditions in Dark Interstellar Clouds: Magnetic Field Strength and Density

S. S. Hong

Seoul National University

On the basis of the core-mantle model of interstellar grains, we have analyzed various optical observations of stars behind or inside the Rho Oph molecular cloud complex. Interpretations given to large extinction measures of these stars yield hydrogen number density of about 500 cm^{-3}, which is in accord with the results from radio observations of interstellar molecules in the cloud. We have shown that grains in dense parts of the complex should be bigger, by about 15% in radii, than ones in diffuse interstellar clouds. Employing the Davis-Greenstein mechanism for grain alignment with the estimated grain size, we have given constraints on the exponent x in the field-density

relation B$\propto n^x$; $0.39 \leq x \leq 0.54$. It is concluded that magnetic field in interstellar clouds increases muchless steeply than classically assumed complete frozen-in flux.

Radiative Transfer of Radio Recombination Line and Continuum in HII Regions

D. W. Kim and S. S. Hong

Seoul National University

In order to know the non-LTE effect on the analysis of radio recombination line observations, we have tried to find whether or not line and continuum are originated from same position in a given HII region.

Solving radiative transfer equation of Hydrogen α-transition line and continuum with slab-model, it is shown that maser like enhancement, i.e., negative absorption, can not be neglected in the case of E.M. $\gtrsim 10^6$ pc/cm^6. Even in homogeneous, isothermal nebula, LTE line to continuum ratio does not agree with non-LTE results.

GOTO 60cm 망원경 성능 점검

이 용 삼

연세 대학교 천문대

GOTO 60cm 반사 망원경을 설치하는 과정에 있어서의 문제점과 망원경의 성능을 점검한 결과를 제시하려고 하며, 동시에 관측자의 입장에서 보는 이 GOTO 망원경의 작동상의 여러 문제들을 논의하고자 한다.

Identification of Old Pole Stars

Um, In Kyung

Seoul National University

The positions of Je(帝) and Book Keuk(北極) often cited as pole stars in old Korean and Chinese star charts and catalogues have been examined by calculating the trajectories of these stars and the pole in the past. According to our calcuations, 1) these pole stars are not the present Polaris, Kujin-Il Sung, and 2) the times at which Je and Book Keuk were closest to the pole are found to be B.C. 1507 (Thang Dynasty) and A.D. 811 (Silla Dynasty), respectively.

Dynamical Masses of Six Globular Clusters

Y. R. Suh and M. S. Chun

Yonsei University

From the previously obtained two characteristic lengths, the core radius r_c and the tidal cutoff r_t,