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

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

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

* Authors are grateful to the KNAO for telescope time and support.