least squares method, we minimize residuals between the calculated and observed IR brightness distribution of the zodiacal emission with respect to the 3 parameters α, p_1, and p_2 of trial $\zeta(r)$ function. Thereby we determine the volumetric absorption cross-section as a function of the heliocentric distance. Implication of the result for the properties of the zodiacal dust cloud will be discussed briefly.

MM Wave Observations of Late Type Carbon Star, IRC+10216

Cho, Se Hyung

Institute of Space Science and Astronomy

The NRO (Nobeyama Radio Observatory) 45 m radio telescope has been used for a high resolution mapping observation of the late type carbon star, IRC+10216. The four molecular spectra (HCN J=1-0, $H^{13}CN$ J=1-0, C_4H N=9-8, C_3N N=9-8) were simultaneously obtained with the Acousto-Optical Spectrometer (AOS). The HCN and $H^{13}CN$ profiles show evident hyperfine components and their atmospheric structure is considered not simple. The spatial distribution of HCN emission reveals more central concentration than that of CO emission. Expanding envelope model is applicable to interpret these features.

Velocity Structure in Bipolar Molecular Outflows

Choe, Seung-Urn

Department of Earth Science, Seoul National University

The velocity structure in bipolar molecular outflows (BMO) has been studied and the physical attributions have been discussed. The relation between physical parameters, especially D (extended distance of the observed lobes) and V (observed expansion radial velocity of the BMO) has been analyzed using cross-plot with the observational data (Lada 1985). The obtained relation, $V \propto D^{-0.6}$ is reasonable for the interpretation of the velocity structure in the BMO. It would be interpreted with the ram presseure deceleration effect and the buoyancy effect by density difference.

Stellar Populations in External Galaxies. I. Unconstrained Synthesis Models and Metallicity Problem.

Whang, Yun-Oh and Lee, Sang-Gak

Department of Astronomy, Seoul National University

Unconstrained population models for several elliptical and spiral galaxies are obtained from their integrated spectra. Spectral energy distributions (SED's) of 49 stellar groups published by O'Connell (1973) are used as input basis and "Linear Programming" algorithm is applied to the galaxy population synthesis problem. The reliability of the newly composed computer program is well-qualified.

The intrinsic strength anomaly (ISA) problem suggested by Taylor and Kellman (1978) is examined with our models, and it is concluded that the stellar SED library seems to be incomplete.