procedures of the zodiacal light considerably. Two dimensional distribution of the zodiacal light brightness is presented on the $(\lambda-\lambda_{\odot}, \beta)$ plane at two visible wavelengths 5080Å and 5300Å with spatial resolution of 2°. It is found that the zodiacal light brightness becomes minimum at elongation around 140°, which is smaller by 10° than that of previous results (Levasseur-Regourd and Dumont, 1980). Our results also show that the brightness at intermediate elongations varies less steeply than that of Weinberg (1963). Features in the resulting brightness distribution will be discussed.

비 균일 중력장에서 파커 불안정성의 선형 해석

김 종 수·홍 승 수
(서울대학교 천문학과)

은하 평면과 수직한 방향의 중력가속도가 은하평면으로부터 거리의 선형 함수로 주어진다는 가정(선형 중력가속도)하에, 자화된 기체와 우주선 입자로 이루어진 계의 파커 불안정성에 대한 분산관계를 구하였다.

관측된 성간매질의 물리량들—성간운의 밀도 분포의 높이척도(160pc)와 속도분산(7km/s), 기체압력에 대한 자기압력의 비($\alpha=0.25$), 기체압력에 대한 우주선 입자의 압력의 비($\beta=0.4$)—에 대하여 가장 불안정한 유한 섭동모드의 최소 성장시간척도는 $\sim10^6$년이고 이때의 길이척도는 ~100pc이다. 이 두 척도는 균일한 중력가속도(등 중력가속도)의 경우 보다 10배 정도 작은 값들이다. 또한 최소 성장시간척도는 성간운들의 충돌시간척도인 $\sim10^7$년 보다 작은 값이다. 이 결과로부터 우리는 등 중력가속도에서의 파커 불안정성과는 달리, 선형 중력가속도에서의 파커 불안정성이 α와 β의 값이 비교적 작은 성간매질에서도 10^7년 이전에 성장할 수 있다는 결론을 내릴 수 있다.

Millimeter Wave Observations of the H II Complex G 34.3+0.2(II)

Se-Hyung Cho, Young-Sun Park, Byung-Ryul Auh
(*Daeduk Radio Astronomy Observatory, Institute of Space Science and Astronomy*)

The molecular cloud associated with the compact H II region G 34.3+0.2 has been observed in the $J=2\rightarrow1$ transition of CS and $C^{34}S$ with an angular resolution of 48 arcseconds. The CS integrated intensity distribution which is more concentrated on center shows a similiar tendency to that of CO.

The dynamical features related to molecular outflow and density structure is investigated.

Synthesis of CO Lines for Rotating Molecular Clouds

Yong-Sun Park
(*Institute of Space Science and Astronomy*)
Hong-Sik Yun and Seung-Soo Hong
(*Department of Astronomy, Seoul National University*)

Aiming at an empirical basis for probing internal dynamics of dark interstellar clouds, we investigate to what extent the observed line profiles and shifts may accommodate the rotational

characteristics of a given interstellar cloud. Various rotational laws are adopted for the distribution of rotation velocity from cloud center to boundary, and CO line profiles of different transitions are synthesized for each rotational law. Line synthesis is done according to the model by Leung and Liszt(1976, *Ap. J.*, **208**, 732), who treated the line transfer problem in a full non-LTE manner. Validity of the practice of inferring the rotation velocity from the mean velocity of line is critically assessed for the various rotational laws. Particular emphases will be given to the effects of optical depth on renderings of the rotational characteristics.

A Progressive Report on the CO Observations of B361

Hyun-Goo Kim, Yong-Sun Park,
(Institute of Space Science and Astronomy)
Seung-Hong Park, and Seung-Soo Hong
(Seoul National University)

In order to study detailed structures of dark globules, we observed Barnard 361, a prototype of Bok globules, in the $^{12}CO(J=1-0)$ line. Employing the full angular resolution of the DRAO 14m radio telescope, we made maps of the integrated line intensity and the peak velocity *V*max over the $20'\times20'$ area centered on the globule. The intensity map clearly delineates sharp boundaries at the south and west edges of the globule; however, towards the north and east, the globule seems to extend much wider area than previously thought. Along with the usual space-velocity diagram, we will utilize the *V*max-map in testing the possibility of rotation often claimed for the globule.

Preliminary Results on the Observation of IRAS 1629A

Jae-Hoon Jung, Jung-Ho Hong, Hyun-Goo Kim
(Daeduk Radio Astronomy Observatory, Institute of Space Science and Astronomy)

^{12}CO $(J=1\rightarrow0)$ observations of the region around IRAS 1629A in ρ-Oph Cloud complex were carried out to examine the morphology of molecular outflow associated with the protostellar object.

A tentative $20'\times20'$, ^{12}CO map clearly shows the bipolar structure extended over $8'\times4'$ region, but no clear evidence of double bipolar as asserted by Walker, et al (1988). This fact may be attributable to the large optical depth of ^{12}CO $(J=1\rightarrow0)$, and low resolution of DRAO 14m telescope.

Gravitational Waves from the Black Hole Coalescence Events in Nearby Galactic Nuclei

Seok-Jae Park
(Dept. of Astronomy Univ. of Texas at Austin)

We will concentrate on supermassive black hole binaries formed later by merging galaxies whose central holes already have been existed. Since an enormous outburst of gravitational radiation