Assuming the dust absorption efficiency factor of dust to vary with wavelength as $Q_{abs} \propto \lambda^{-n}$,We first calculate the 60 to 100μm color temperatures and the optical depths at each pixel. The resulting map of optical depth delineates possible boundary of a globule. We go back to the intensity map, and construct a background by fitting the intensity values at the trial boundary pixels and several additional control points to a smooth surface. Intensity of background surface is then subtracted from the observed intensity over the globule. We re-calculate the color temperture from the corrected values of intensity. The whole procedure is repeated until no further refinements are necessary for locating the globule boundary. This correction scheme has been applied to the IRAS images of L1523. Uncertainties involved in the selections of control points and power-law index n for the efficiency factor will be discussed.

## 구형 성간분자운 S87의 물리학적 구조

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적외선원 CRL 2454 를 지닌 작은 HII 영역인 S87이 중심에 위치한 분자운에 대하여 10개의 분자선을 대덕전파 망원경으로 관측하였다. 관측된 분자선들은 3mm 영역의 $^{12}CO(1-0)$, $^{13}CO(1-0)$, $C^{18}0(1-0)$, CS(2-1), HCN(1-0), $Hco^{+}(1-0)$, $N_2H^{+}(1-0)$, $HC_3N(10-9,11-10,12-11)$ 천이선들이다. 구형모양의 경계가 잘 지워진 고립되어있는 이 분자운의 관측결과로부터, 중심영역에서의 각분자들에 대한 총 시선밀도들을 LTE 복사전달 모델, 미세천이선(hyderfine lines)등을 이용하여 구하였다. 또한 각 분자들의 분포를 서로 비교하여 총 질량,별 형성 효율,화학적 분포의 변화 등을 살펴보았고, 다른 분자운과의 물리적 상호관계를 살핌으로써 이 분자운의 물리화학적 상태를 연구하였다.

## A Fast Expanding H I Shell in W44: A Pre-Existing Wind-Blown Shell Overtaken by a Suprnova Remnant

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We have carried out H I 21-cm line observations toward the shell-type supernova remnant W44 using the Arecibo telescope (FWHM=3.3). The observations revealed that the high-velocity H I gas in W44 (Koo and Heiles 1991) has a shell structure. The H I velocity structure suggests that the shell is expanding at = 150 Km s-1 and has a radius

of = 9 pc, which is significantly smaller than the radius (14pc) of W44 in radio continuum. Most of the X-ray emission in W44 originates from the interior of the H I shell. Neither the standard Sedov model nor an evaporative model can explain the two shell structure with a centrally-peaked X-ray emission of W44. We propose that the H I shell is a pre-existing shell that has been reaccelerated by the supernova blastwave. The blastwave apparently has overtaken the wind-blown shell and is propagating into the ambient interstellar medium. We discuss the dynamical evolution of W44

## Nonlinear Evolution of the Parker Instability

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We examined the effect of the mode interaction to the nonlinear of the Parker instability in the background nonuniform gravitational fields. The initial equilibrium state taken is the same as that of the model Ao(Matsumoto et al. 1988) except for the geometrical size, and the type of perturbation. The random perturbation is taken in order to incorporate the spectra of the unstable mode. In particular, we emphasized the specific mode characterized by the horizontal length by enforcing the periodic boundary condition in horizontal direction.

As the instability grows, the structure of the model whose horizontal length Xmax is equal to the wavelength of the most unstable fundamental mode (max = 6.16), converges to the configuration as shown by Matsumoto et al.. For X max > max, the most unstable, fundamental mode is still dominant. But slant spurs grow as they interact with neighboring ones. We find material in galactic plane is more condensed by the strong shockwave, despite their column ratio is not so different from the case of X max= max.

## Gravitational Instabilities in a Protoplanetary Disk Including the Effects of Magnetic Fields

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We investigate the gravitational instability of a thin, Keplerian protoplanetary disk including the effects of a largely azimuthal magnetic fields. The disk is assumed to consist of neutral and ionized gas and neutral dust which are coupled by gravity and friction. The growth rate and eigenfunctions are calculated numerically using non-axisymmetric linear perturbation methods. The results show that the growth rate has a maximum at some intermediate azimuthal number m, but for each value of m it is reduced relative to the