

Assuming the dust absorption efficiency factor of dust to vary with wavelength as $Q_{\text{abs}} \propto \lambda^{-n}$, We first calculate the 60 to 100 μm 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 temperature 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

이 해 경¹, 민 영 기¹, 민 영 철²

¹경희대학교 우주과학과

²한국표준과학연구원 천문대

적외선원 CRL 2454 를 지닌 작은 HII 영역인 S87이 중심에 위치한 분자운에 대하여 10개의 분자선을 대역전파 망원경으로 관측하였다. 관측된 분자선들은 3mm 영역의 $^{12}\text{CO}(1-0)$, $^{13}\text{CO}(1-0)$, $\text{C}^{18}\text{O}(1-0)$, $\text{CS}(2-1)$, $\text{HCN}(1-0)$, $\text{Hco}^+(1-0)$, $\text{N}_2\text{H}^+(1-0)$, $\text{HC}_3\text{N}(10-9,11-10,12-11)$ 천이선들이다. 구형모양의 경계가 잘 지워진 고립되어있는 이 분자운의 관측결과로부터, 중심영역에서의 각분자들에 대한 총 시선밀도들을 LTE 복사전달 모델, 미세천이선(hyperfine lines)등을 이용하여 구하였다. 또한 각 분자들의 분포를 서로 비교하여 총 질량, 별 형성 효율, 화학적 분포의 변화 등을 살펴보고, 다른 분자운과의 물리적 상호관계를 살핍으로써 이 분자운의 물리 화학적 상태를 연구하였다.

A Fast Expanding H I Shell in W44:

A Pre-Existing Wind-Blown Shell Overtaken by a Supernova Remnant

Bon-Chul Koo¹ and Carl Heiles²

¹Department of Astronomy, Seoul National University

²Astronomy Department, University of California, Berkeley, USA

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 $\approx 150 \text{ Km s}^{-1}$ and has a radius