distances of the encounters, tidal capture or stellar disruption is possible. In order to determine the consequences of close encounters between a neutron star and a main-sequence star, we made a number of numerical experiments using SPH technique.

We find that some fraction of material, which is a function of pericentral distance and mass of the encounter, is bound to the neutron star during first pericentral passage. The bound material is expected to accrete to the neutron star, resulting acceleration of rotation. Thus isolated millisecond pulsars can form as a result of close encounters. We make estimates of the expected numbers of millisecond pulsars in globular clusters. This mechanism may be able to explain the relative abundance of isolated millisecond pulsars in globular clusters over the disk population.

젊은 산개성단의 UBV CCD측광 I : IC 1805

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서울대학교 24인치 반사망원경을 사용하여 Cas OB6 성협의 핵심성단인 IC 1805 (Mel 15)의 중심부 20′ X 20′ 에 대한 UBV CCD 측광을 수행하였다. 색-등급도와 색-색도에서 얻은 이 성단의 성간소광 E(B-V)는 0.86 ± 0.12로 비교적 큰 차등효과를 보이며, 거리지수 $V_0 - M_V$는 $11.^m9$ (d=2.4 kpc)을 얻었다. 성간소광이 보정된 색지수와 기존의 분광분류를 이용하여 얻은 HR도에 Schaller et al. (1992) 의 항성진화 모델을 적용했을 때, 이 성단에서는 85 $M_\odot$를 갖는 별이 존재하며, 나이는 250만 년 이하 질량이 큰 별들의 초기질량함수 기울기 Γ ($\equiv d \log \xi / d \log m$) 는 -1± 0.1로 다소 편편한 형태를 보였다.

VLA Ammonia Line Observations of the Protostellar Object IRAS 19950+3248

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We have carried out the VLA NH_3 (J,K) = (1,1) and (2,2) line observations of the protostellar object IRAS 19950+3248. NH_3 (1,1) line maps show two dense molecular clumps: one associated with the IR source and the other located at ~ 10″ northeast from the IR source. The clump with the IR source is somewhat elongated (9″ × 6″) along the east-west direction, which is roughly perpendicular to the CO bipolar outflow axis.

The velocity structure along the east-west direction suggests that the clump is a ring-like structure expanding at ~ 2 Km s^{-1} . The dynamical time scale of the expanding motion is ~ 4 × 10^4 yrs, which is comparable to that of the associated CO bipolar outflow. The mass of the clump is ≥ 0.7 M⊙. NH_3 (2,2) line has been detected only at the center of clump with the IR source, and yields a rotational temperature of ~ 15 K. The clump without the IR source is filamentary (~ 25″ × 10″) and is composed of several NH_3 cores connected by diffuse emission. The line widths (≤ 1 km s^{-1}) of these cores are narrower than that of the IR source-associated core. The mass of the clump is ≥ 0.9 M⊙ and the rotational temperature is ≤ 12 K.