

function of shock velocities was presented. I discussed the predicted  $[H_2]$  and  $[OI]$   $63.19\mu m$  line intensities from a random distribution of interacting clouds in normal and interacting galaxies. A normal galaxies and M82 was considered as example. Especially I discussed the mechanism which produced the observed  $[OI]$   $63.19\mu m$  and  $[H_2]$   $2.122\mu m$  intensities from M82. I also discussed the predicted  $[H_2]$  in and  $[OI]$  intensities in galaxies, assuming a hierarchical cloud model. The ratio of the  $[H_2]$   $2.122\mu m$  to the  $Br_\gamma$  intensity from the HII regions and the cloud velocity distribution was derived.

### The Acoustic Emission in a Sunspot

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An attempt has been made to generalize earlier works on the generation of acoustic waves in a non-magnetic turbulent medium by taking into account the effect of a strong vertical magnetic field. In our work, the horizontal component of turbulent magnetic field and the monopole term in the Reynolds stress have been taken to be principal sources, which produce the acoustic waves in sunspots.

The resulting formulation has been applied to a typical sunspot model ( $T_{eff}=4000^\circ K$ ,  $B=3200$  gauss), which was constructed by means of Öpik's convection theory on the assumption that the missing flux in sunspots is transported away by undissipated Alfvén waves. The computed energy spectrum of the acoustic waves emitted from the spot is presented and its physical characteristics are discussed.

### 구상성단의 형태학적 인자들로 부터의 물리량 추정

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구상성단의 C.M 도상에서 얻어지는 형태학적 인자들을 항성 진화 모형(Sweigart and Gross 1976; Ciardullo and Demarque 1977; VandenBerg and Bell 1985)과 대기 모형(Kurucz 1979; Bell and Gustaffson 1987; VandenBerg and Bell 1985)으로부터 이론적으로 도출하는 관계식들을 구하였다. 이들을 주계열까지 잘 관측된 구상성단들에 적용하여 각 구상성단의 헬륨의 양 · 나이 · 질량 · 표면온도 · 맥동 주기등의 여러가지 물리량을 도출했다. 이들 물리량과 관측치의 비교를 통하여 구상성단의 체계적인 진화양상을 조사한다.

### DDO 측광인자들의 눈금 재조정

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밝은 별들의 DDO 측광자료(McClure and Forrester 1981, Publ. Dominion Ap. Obs., 15, 439)에 UBV 측광자료(Hoffleit 1982, "The Bright Star Catalogue", Yale Univ. Obs)를 적용하므로써 DDO 색지수( $C(42\sim 45)$ ,  $C(45\sim 48)$ )와  $(B-V)$  사이의 고유색지수 관계도표를 얻었다.

위의 관계도표로부터 성간소광이 보정된 DDO 측광인자( $C(41\sim 42)_0$ ,  $C(42\sim 45)_0$ ,  $C(45\sim 48)_0$ )와