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A Review of Early-Type Contact and Near Contact Systems

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Late-type contact systems have been known for sometime. They are commonly called W UMa systems. Even though not all the W UMa systems are found to be contact. Usually, they have spectral types of G to K. Early-type systems are having spectral types from O to about A. These systems are composed of hot and massive stars. It is generally believed that the O and B systems have radiative common envelopes in direct contrast to convective envelopes of the late-type systems. In the last fifteen years or so 14 to 15 systems have been discovered. For the systems having A type spectra their atmospheres are much more complicated and are frequently found having large temperature differences between components.

Many close binary systems are found to be semidetached. Some of them are having near contact configurations. These systems occupy a distinctive region in a H-R diagram comparing with the rest of the semidetached systems. The relationship between contact and near contact systems will be discussed.

A Search for Intracluster Magnetic Fields and the Large Scale Magnetic Fields of the Coma Cluster of Galaxies

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Statistical studies of Rotation Measures (RMs) of 157 radio sources seen in or through a total of 51 Abell clusters of Galaxies were made to detect the excess RM arising from the intracluster medium. When the samples are compared with the control RM samples seen farther away from the clusters, the former samples appear to be broadened by $20<RM(ic)<40$ rad/m^2 with a confidence

level of 99%. This constitutes strong evidence that the intracluster medium is substantially magnetized and the most probable field strength is estimated to be $0.5<B(ic)<1.5$ microgauss.

A very large scale magnetic field is also detected in the Coma cluster of galaxies which appears as a diffuse radio emission connecting Coma C and Coma A complexes observed at 326 MHz with the WSRT. The equipartition field strength of the region is estimated to be $0.2(1+k)^{2/7}$ microgauss, provided that its spectral index ranges -1 to -2. This is the first time I believe this has been observed extending in such a large scale from a galaxy cluster core region.

전파 Jet 3C449에 대한 동역학적 모형

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전파원 3C449의 거울 대칭형 전파구조에 대한 모형을 설정하고, 그로부터 관측되는 jet blob의 운동 경로를 수치계산함으로써 3C449의 전파구조에 대한 형성 요인들을 추정하였다.

본 연구에서는 jet원의 모형으로 은하핵의 둘레를 도는 Black Hole을 도입하였으며 jet원은 공전 궤도면에 수직하게 분출된다고 가정하였다.

한편 jet blob의 운동을 기술하는데 있어서는 중력과 ram 압력, 그리고 모은하의 공간운동의 영향을 함께 고려하였다.

The Analysis of the H II Region Spectra in the Spiral Galaxy NGC 300

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IPCS spectra have been obtained for No. 1 (Sersic 39) H Ⅱ region in the Scd galaxy NGC 300 (Sculptor Group). Observations were carried out on September 20~23, 1977 using the Anglo-Australian Telescope with the ROG Cassegrain spectrograph and UCL Image Photon Counting System in two-demensional mode with the eight channels in λλ3600~5500Å (Blue) and λλ4700~8500Å (Red). From the line intensities we calculated electron temperatures, electron densities and chemical abundances using the empirical calibration method and the photoionization model sequence of Evans and Dopita (1985).

The electron temperatures and abundances do not show any significant radial gradient. These abundances are lower than the solar values and Orion nebulae. The spectra is consistent with ionizing stars having the effective temperature of 45,000K (in Blue) or 40,000K (in Red) on the photoionization model sequence of Evans and Dopita, and Z is fitted to $0.5\ Z_{\odot}$ which is consistent with the value deduced from line intensities.

An Analysis of Velocity Distribution in Coma Cluster of Galaxies

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