Triaxial Bulges in Barred Galaxies

Ann, Hong Bae
Department of Earth Science, Pusan National University
Park, Nam Gyu
Institute of Astronomy and Space Science

We have found that the bulges of a significant fraction of barred galaxies are elongated into secondary nuclear bars, by a close examination of the two-dimensional luminosity distribution of 112 bright barred galaxies which were obtained with the 105cm Kiso Schmidt telescope. Most of the morphological types of galaxies which have distinguished nuclear bars are $T=-1$ or $T=3$. The small inner bars, i.e., triaxial bulges tend to be aligned perpendicular to the main bars. We present the detailed morphology of the triaxial bulges by making use of the isodensity tracings, isophote maps, and luminosity profiles. The nature of triaxial bulges is discussed in connection with dynamical models.

Detection of Excess Rotation Measure due to Intracluster Magnetic Fields in Clusters of Galaxies

K.-T. Kim
Department of Astronomy and Space Science,
Chungnam National University, Daejeon 305-764, Korea

The Faraday rotation measures of a sample of extragalactic radio sources projected within a third of an Abell radius of a galaxy cluster were compared with those of sources located further from cluster centers. The result strongly indicates that the distribution of the residual rotation measure in the former population is broadened, at a confidence level exceeding 99%. The broadening is detectable out to 1 h_{50}^{-1} Mpc. Our best estimate of the excess Faraday rotation measure varies from 100 ± 36 rad m^{-2} in the central sixth of an Abell radius to 36 ± 15 rad m^{-2} further out. The combination of these results with electron densities determined from X-ray data for some of the clusters suggests that magnetic field strengths in cluster gas are of order of 1 microgauss.

Photometric Evolution of Galaxies: Programs and Initial Results

Lee, Chang-Won and Ann, Hong Bae
Department of Earth Science, Pusan National University

We present some initial results of newly developed numerical models for the photometric evolution of galaxies. In the models, stars are formed from interstellar gas evolve along the theoretical evolutionary tracks. At the end of giant branch tracks stars die and become dark matter with ejection of substantial fraction of gas into intersteller medium. We performed the numerical integrations in time steps of 3×10^6 year in order to calculate the bolometric luminosity, UBV colors, luminous and dark matters of a model galaxy. We take into account the metallicity effect on UBV colors by using evolutionary tracks with different metallicity for successively formed stars. Among