Jets from Massive Black Holes in Large Samples of Radio-Loud AGN

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A small fraction of AGN emit powerful radio waves from component structures (cores, jets, lobes) with sizes ranging from parsecs to Megaparsecs. Our best guess as to the ultimate power source of these radio-loud AGN (RLAGN) is the gravitational accretion of galactic stars, dust and gas onto central massive black holes (MBHs) imprisoning 10^6 to 10^10 solar masses; such objects are now believed to naturally form in galactic centers during their evolution. One way to investigate the cosmological behaviour of RLAGN, and of their resident MBHs, would be to compare global Monte-Carlo simulations of the evolving MBH population, along with their derived jets, with the many publicly available radio catalogs and imaging databases. As a small first step, a simple model applied to the jet angular size distribution of ~4x10^3 RLAGN, imaged in the MIT-VLA snapshot survey, implies a non-relativistic jet advance speed for this large sample. As for physical theories of RLAGN evolution, the complex physics of MBH magnetospheres will be briefly introduced, and some remarks will be made about both the long- and short-term time variability of RLAGN power output.

On the method of determining the star formation history from CMDs II. Application to M33

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We present a study of star formation history of M33, a spiral galaxy in the Local Group, based on the modeling of star formation history with the multi-band photometry of stars. We have developed a code which derives fast and efficiently star formation histories from the color-magnitude diagrams of resolved stars in galaxies. Podova stellar evolution models are used in our code. Our code is designed also to derive the chemical history and other basic physical parameters. Our model has several advantages over others in the literature. We have applied our models to M33, using the deep VI photometry of stars in several regions in M33 obtained using the HST/WFPC2 (Kim et al 2001, AJ, in press). Star formation history of M33 thus derived will be presented.