

hanced star formation. Angular momentum conservation may cause the ejection of significant amounts of synthesized material from stellar evolution into intergalactic space. This gas may form tails of stellar clusters and dwarf galaxies and we test this scenario by a search for small gas ejecta around a sample of ultraluminous infrared galaxies with compact nuclear starbursts. About 15 galaxies were selected from the *IRAS* bright galaxy sample and from Condon et al. (1991). We also selected several regular spirals nearby the *IRAS* galaxies as ‘control galaxies’. Wide-field (prime-focus) images were taken at the 2.5-m INT on La Palma in *V* and *R* band. We have analyzed NGC 3226, NGC 2623 and NGC 520, and made lists of small but extended, nonstellar objects (NSOs) around each central galaxy. The objects have been photometrically calibrated, with a precision of about 0.1 mag and are complete to about 20 mag. Only a few of them have been previously cataloged. We also made histograms of the surface density of the NSOs as a function of the distance from the central galaxy’s center. For the frames with multicolor observations, statistics of the colors of the NSOs can be obtained. There is no evidence in this preliminary analysis for a concentration of NSOs close to the parent galaxy. There are some apparent concentrations of NSOs in regions near interaction zones of the central galaxy. In a string of objects extending from the tail of NGC 2623, the NSOs have bluer colors than in the average. In the case of NGC 520, the density of NSOs anticorrelates with the H I column density in the tail extending to the companion UGC 00957.

<sup>1</sup> Instituto de Astrofísica de Canarias, La Laguna, Spain.

<sup>2</sup> Universidade de São Paulo, Brazil.

### 3-DIMENSIONAL MHD MODELLING OF JETS: STABILITY AND COLLIMATION

E. M. de Gouveia Dal Pino<sup>1</sup> and A. H. Cerqueira<sup>1</sup>

Highly collimated, supersonic, magnetized jets are common in Active Galactic Nuclei. We investigate the stability of magnetized jets via 3D simulations using the Smoothed Particle Hydrodynamics technique (e.g., Gouveia Dal Pino & Benz 1993, 1994; Chernin et al. 1994; Gouveia Dal Pino 1995; Gouveia Dal Pino et al. 1996; Gouveia Dal Pino & Birkinshaw 1996), which has been modified to incorporate the effects of magnetic fields (e.g., Gouveia Dal Pino & Cerqueira 1996). Jet collimation, cushioning on the shocks at the jet head, and internal knot formation due to the presence of magnetic fields (*B*) are investigated in both, adiabatic and radiative jets. Two initial magnetic field geometries are considered: i) a uniform longitudinal *B*-field in the jet and envi-

ronment, and ii) a helical *B*-field. Compared with pure hydrodynamical cases, the presence of a *B*-field increases the beam collimation and, in general, reduces the density enhancement at the bow shock in the head. Helical geometries promote some pinching along the beam, which may explain the formation of internal knots in a few dynamical times. The latter effect is, however, inhibited by the presence of radiative cooling. Kink helical instabilities develop mainly close to the jet head in both *B*-geometries, which tend to break the jet axis-symmetry.

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<sup>1</sup> Instituto Astronômico e Geofísico, Universidade de São Paulo, Brazil.

### OPTICAL VARIABILITY OF QSOs: THE STARBURST, ACCRETION DISK AND MICROLENSING PARADIGMS

S. Cristiani<sup>1</sup>, S. Trentini<sup>1</sup>, F. La Franca<sup>2</sup>,  
I. Aretxaga<sup>3</sup>, and P. Andreani<sup>1</sup>

The long-term variability of a large, statistically well defined sample of optically selected QSOs has been studied. The variability-luminosity and variability-redshift correlations, and the wavelength dependence of the variability have been investigated by means of “robust” statistical estimators that allow to eliminate the influence of the measurement errors. The analysis of the ensemble structure function and the individual variability indices in the QSOs rest frame show that: 1) A negative correlation between variability and luminosity is clearly present (more luminous QSOs show less variability). 2) A positive correlation exists between variability and redshift. Such correlations may be parameterized either with a model in which the timescale of the variability is fixed for all the QSOs and the amplitude linearly increases with the absolute magnitude and redshift, or with a model in which the timescale of the variability linearly depends on the absolute magnitude and the amplitude is only a function of the redshift. 3) The amplitude of the *R*-band variability is smaller