

Byurakan-IRAS galaxies as massive galaxies with nuclear and starburst activity

Areg M. Mickaelian and Gohar S. Harutyunyan

Byurakan Astrophysical Observatory (BAO), Byurakan 0213, Aragatzotn province, Armenia
email: aregmick@aras.am, goharutyunyan@gmail.com

Byurakan-IRAS Galaxies (BIG) (Mickaelian 1995) are the result of optical identifications of IRAS PSC sources at high-galactic latitudes using the First Byurakan Survey (FBS) low-dispersion spectra (Markarian *et al.* 1989). Among the 1577 targets, 1178 galaxies have been identified. Most are dusty spiral galaxies and there is a number of ULIRGs among these objects. Our spectroscopic observations, carried out with three telescopes (Byurakan Astrophysical Observatory 2.6m, Russian Special Astrophysical Observatory 6m and Observatoire de Haute Provence 1.93m; Mickaelian & Sargsyan 2010), for 172 galaxies, as well as the SDSS DR8 spectra for 83 galaxies make up the list of 255 spectroscopically studied BIG objects. The classification regarding activity type for narrow-line emission galaxies has been carried out using the diagnostic diagrams by Veilleux & Osterbrock (1987). All possible physical characteristics have been measured and/or calculated, including radial velocities and distances, angular and physical sizes, absolute magnitudes and luminosities (both optical and IR). IR luminosities and star-formation rates have been calculated from the IR fluxes (Duc *et al.* 1997).

In our spectroscopic sample of 255 BIG objects, we have 43 (17%) AGN, 25 (10%) composite spectrum objects, 157 (62%) starbursts, 29 emission-line galaxies without a definite type, and 1 absorption-line galaxy. There are 3 Ultra-Luminous InfraRed Galaxies (ULIRGs). The average redshift is $z = 0.06743$ and the average distance, 269 Mpc.

The masses of BIG objects have been estimated based on mass-luminosity relations for spiral galaxies. As it appears, most of these objects are giant massive galaxies. The average optical luminosities (absolute magnitudes) in B and R are -18.89^m and -20.51^m , respectively, average physical sizes, $D = 17$ kpc, average FIR and IR luminosities, $L_{fir} = 1.36E+11L_o$ and $L_{ir} = 2.31E+11L_o$ respectively.

Various multiwavelength (MW) data have been retrieved for the full sample of 1178 objects from recent catalogs from X-ray to radio (ROSAT, GALEX, APM, MAPS, USNO, GSC, SDSS, 2MASS, WISE, IRAS, AKARI, NVSS, FIRST, etc.) to make a complete study of these galaxies possible. MW SEDs have been built, which have been matched to their optical classifications. Star-formation rates have been calculated to compare to their other physical characteristics, such as morphology, activity type, UV, optical, IR and radio luminosities.

Keywords. surveys, infrared: galaxies, galaxies: active, galaxies: starburst

References

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