

## Gigahertz-peaked spectrum (GPS) galaxies and quasars

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### Abstract

The results of a comprehensive analysis of continuous radio spectra of a sample of Gigahertz-Peaked Spectrum (GPS) sources are reported. The sources are selected from a flux-density-complete sample ( $S_{\nu} \geq 200$  mJy at 4.8 or 5 GHz) using multifrequency measurements of the RATAN-600 radio telescope and data from the CATS astrophysical catalogs support system. The analysis revealed a very small number (1-2%) of "classical" GPS objects, which is significantly less than the expected fraction of 10%. GPS galaxies are found to have narrower and steeper radio spectra than quasars. The low-frequency part of the spectrum is seen to become steeper with increasing redshift. Galaxies and quasars at the same  $z$  have comparable angular sizes, whereas their luminosities may differ by one order of magnitude. At large redshifts there is a deficit of objects with low (several GHz) peak frequencies. The number of GPS galaxies decreases sharply with redshift, and most of them are found at  $z$  between 0.01 and 1.81. GPS quasars are found at large redshifts, from 0.11 to 3.99. A quarter of the sample consists of blazars whose spectra may temporarily have a convex shape when the object is in active state. © 2013 Pleiades Publishing, Ltd.

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### Keywords

active-radio continuum, galaxies, general-galaxies