

Search for giant radiogalaxies on the declinations from 3.5 to 12.5 degrees

A.V Butenko, A.V Glyancev, S.A Tyul'bashev
Pushchino Radioastronomy Observatory

Program “Space weather”

- Within the program “Space weather” on the radiotelescope LPA several hundred radiosources are observed and interplanetary plasma being daily monitored.

Characteristics of the equipment

- Observations were performed on Large Phased Array antenna of P.N. Lebedev institute at the Pushchino RadioAstronomy Observatory, at the frequency of 111 MHz using 600 KHz bandwidth and time constant of 0.1 s. All the neighboured beams are equally separated by 0.5° in declination. The half-power beam width is approximately equal to $0.5^\circ \times 1^\circ$.

Large Phased Array antenna of P.N. Lebedev institute



Large discrepancy

- Identification of the strong sources observed on radio telescope Large Phase Array (Pushchino) at 111 MHz was carried out with another catalogs(4C,TEXAS).
- A large discrepancy for two sources was found between the estimated and expected flux densities on the basis of the integral spectra.

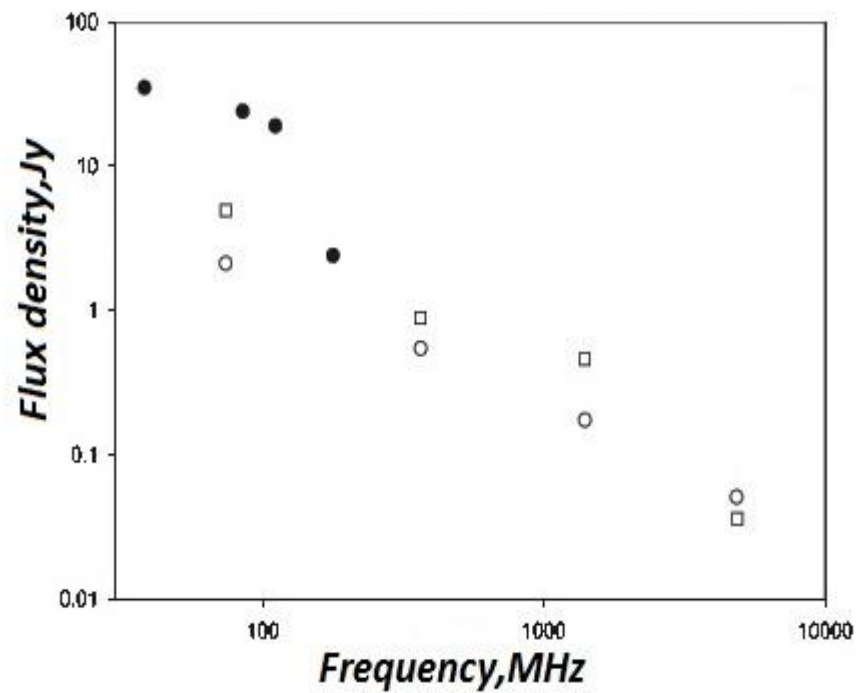
Possible explanations

- There were suggested three possible explanations for the observed discrepancy :
- 1) Super steep spectra
- 2) Confusion
- 3) Large angular sizes

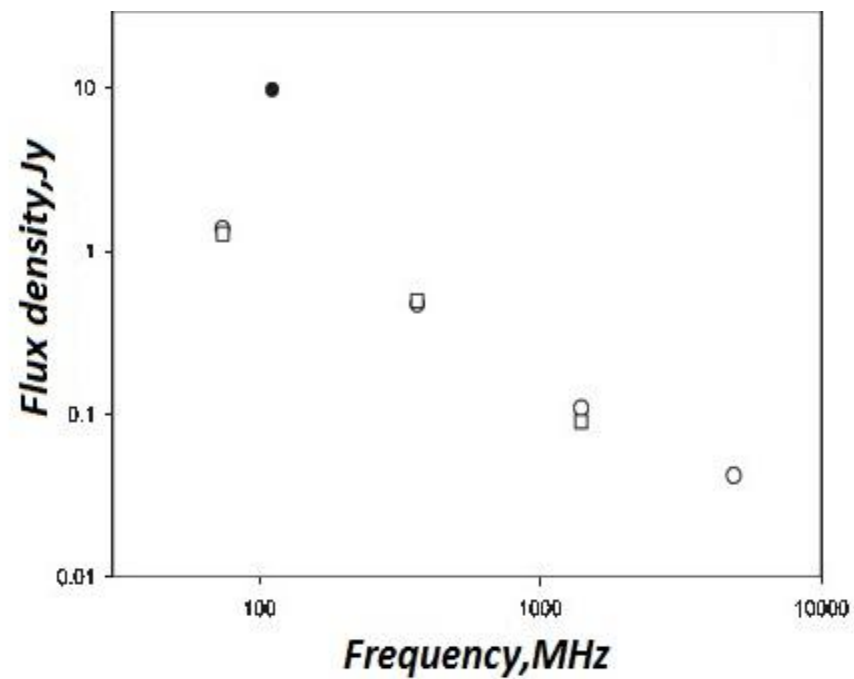
Super steep spectra

- For each source, which showed a discrepancy, the identification was carried out in other catalogs(used NED and Masterlist). It was found that the spectral index of the source, constructed on catalogs with high angular resolution, similar to the typical values of the spectral indices of extragalactic sources ~ 0.9 . Thus, the observed discrepancy can not be explained by spectral indices of sources

B0355+099



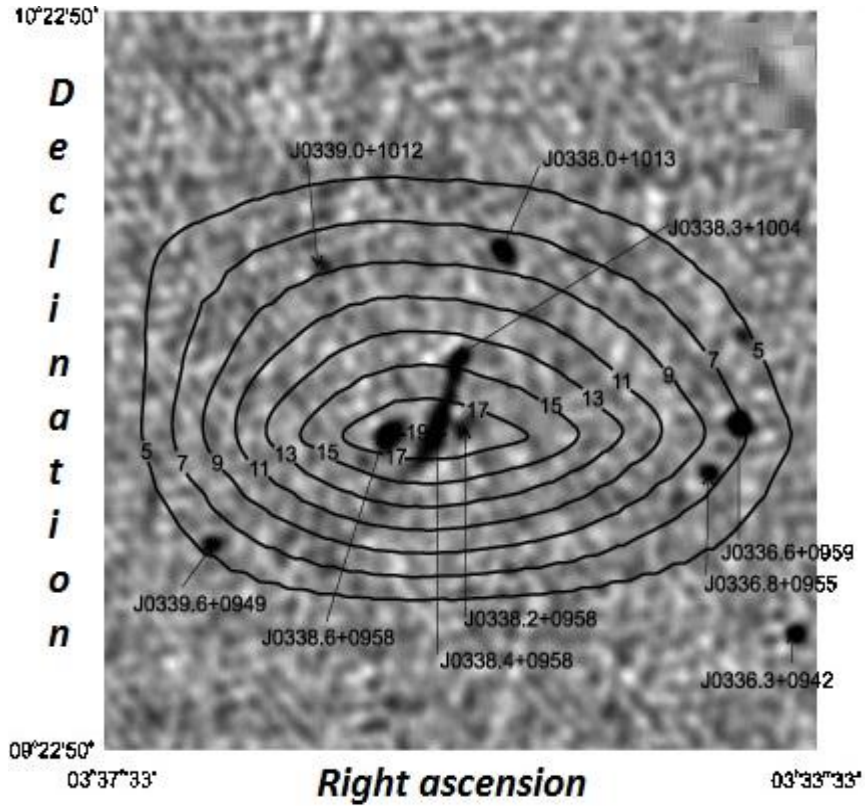
B0356+062



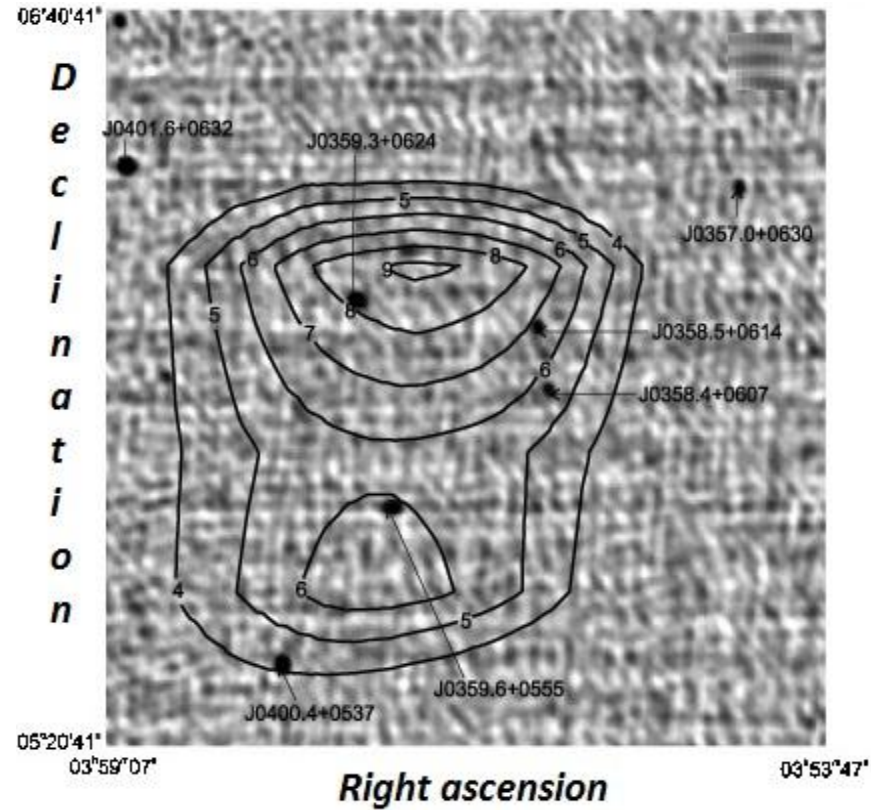
Confusion

- Some sources may contribute to the registered integrated flux density due to the effect of confusion. We found that for all detected sources confusion effect is not important (used catalog VLSS).

B0355+099



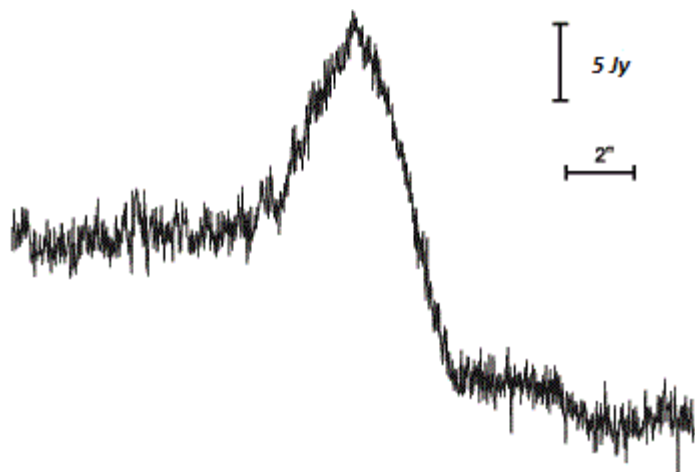
B0356+062



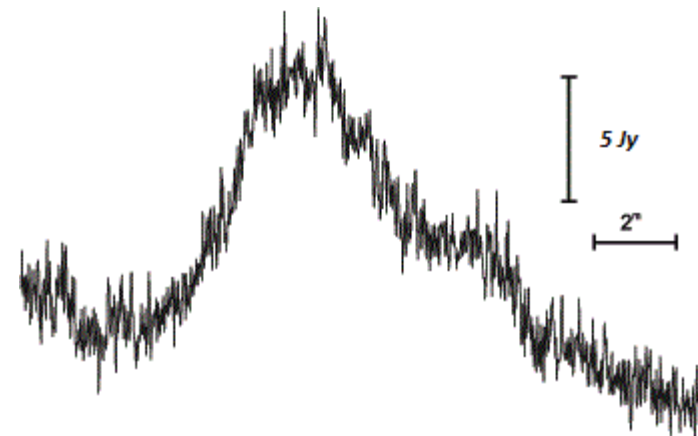
Large angular sizes

- Detected sources are observed in several beams of pattern LPA, so we suppose that they have large angular sizes.
- Directivity pattern of the LPA has dimensions $0.5^\circ \times 1^\circ$. And the pattern of most radio telescopes used for catalogs, at frequencies close to the frequency of the LPA, is approximately several minutes.
- Therefore, the pattern of the LPA gets a much larger part of the flux density of the extended radio source.

B0355+099



B0356+062



Thanks for your
attention!