

# RadioAstron AO-1 proposal

*Submission deadline: February 8, 23:59 UT.*

## COVER PAGE

Title: Black hole discovery

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Abstract:

100 words limit.

Project science category: AGN

*Select from the following list, more than one can be selected: AGN, pulsars, masers, ISM, astrometry, gravity, other.*

Team contact name and e-mail address: Ivan Petrov (*e-mail: Ivan.Petrov@gmail.com*)

Total observing time request: 100 hrs

Number of independent observing segments and typical range of projected baselines required:

20 (3-30 Earth diameters)

Specific dates and time intervals requested:

*If your experiment requires specific dates and UT ranges, please, indicate them:*

February 1, 2014: 08:00-16:00 UT — M87 imaging, option 1;

February 9, 2014: 08:00-16:00 UT — M87 imaging, option 2;

March 1, 2014: 14:00-24:00 UT — Cen-A imaging.

*or in case of fringe surveys a general request could be made like:*

any day/time around the year when targets are visible for RadioAstron at requested projected baselines.

Observing band(s) [select from P - 92cm, L - 18cm, C - 6cm, K - 1.3cm]: C and K

*also indicate specific central observing frequency, if needed, e.g., for spectral line observations following the RadioAstron users handbook*

Source list or sample selection criteria if more than 30 targets; indicate priorities, if desired:

M87 12:30:49.423382 +12:23:28.04366 (J2000)

Cen-A 13:25:27.615211 -43:01:08.80473 (J2000)

*or:*

Fifty SMBH candidates within 100 Mpc from Earth with correlated flux density greater than 100 mJy at 6 cm.

Ground array support

- Optimal: all GRTs around the world
- Minimal acceptable: One 100-m telescope (Effelsberg or GBT)

Ground radio telescopes (GRTs) requested within this proposal:

*the full list of telescopes which could be requested is: Sv, Bd, Zc, Ev, Ud, Ro, Ys, Nt, Mc, Tr see special constraints and comments in the 'RadioAstron AO-1 proposal final notes'.*

GRTs or networks (to be) requested in a separate proposal directly to the appropriate ground facilities:

EVN

*or*

GBT

Correlator: ASC

(see 'RadioAstron AO-1 proposal final notes' for other options.)

Special constraints:

...

*Expected length of this cover page is two pages, however, there is no formal limit.*

*Scientific and technical justification, technical details: up to six pages including figures, tables and references with  $\geq 11$  pt font size*

The proposal should discuss the following:

1. Introduction -- outlining the reasons for the project to constitute key science area for RadioAstron and providing concise background information necessary to assess the scientific merits of the research proposed.
2. Research Goals -- describing the main goals of the observations proposed and their impact on the broader field of astrophysics.
3. Team Capacity -- reviewing the team capacities to execute the timely completion of the project within the shared-risk RadioAstron AO-1.
4. Observational Strategy -- describing the methodology of observations. Providing an estimate of the overall observing time required for completion of the project if it intends to be a multi-year experiment.
5. AO-1 Observations -- describing specific observations and time allocations during the AO-1.
6. Technical Justification -- describing the observing modes to be employed, discussing optimal and minimum acceptable ground support required for the project, required detection limits, dynamic range, and uv-coverage of observations.