

RadioAstron AO-7 proposal

Submission deadline: 21 January 2019, 23:59 UT.

COVER PAGE

Title: Black hole shadow imaging

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Abstract:

100 words limit.

Project type: KSP

Select from the following: KSP or GOT.

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: 60 hrs

Should be < 100 hours if GOT.

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:

1 February 2019: 08:00-16:00 UT — M87 imaging, option 1;

9 February 2019: 08:00-16:00 UT — M87 imaging, option 2;

1 March 2019: 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 radio telescopes (GRTs) requested via this proposal: Sv, Zc, Bd, Ir

The telescopes, which do not require a separate proposal, are:

Sv, Bd, Zc, Ir, Ro, Ys, Nt, Mc, Sr, Tr, Wb1, Ur, Sh, T6, Hh, Wa.

see special constraints and comments in the 'RadioAstron AO-7 document', section 2.4.

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

global VLBI *and / or* GBT, etc.

Correlator: ASC

Make sure to check the 'RadioAstron AO-7 document', section 2.5, for other options which are MPIfR-DiFX as well as the JIVE ERIC correlator SFXC.

Special constraints:

...

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

Scientific and technical justification, technical details

Please use an 11+ pt font size and limit the length of the justification to six/four pages including figures, tables and references for KSP/GOT proposals, respectively.

1. Introduction — providing concise background information necessary to assess the scientific merits of the research proposed; outlining the reasons for the project to constitute key science area for RadioAstron if the KSP-type is selected. If the project is a continuation of previous observations — **results and publication list of ESP and/or AO-1–6 RadioAstron observations must be discussed.**

2. Research Goals — describing the main goals of the observations proposed and their impact on the broader field of astrophysics.

3. Observational Strategy — describing the methodology of observations.

4. AO-7 Observations — describing specific observations and time request for the AO-7.

5. Technical Justification — describing the observing modes to be employed, discussing the feasibility of proposed observations, optimal and minimum acceptable ground support required for the project, required detection limits, dynamic range, and uv-coverage of observations.

The KSP proposals should additionally address the following issues:

6. Team Capacity – reviewing the team capacities to execute the timely completion of the project and publication of results.

7. Overall duration of the program – providing an estimate of the overall observing time required for completion of the project if the full experiment is intended to be carried over several AO periods.