Max-Planck-Institut für Radioastronomie

Auf dem Hügel 69 53121 Bonn Germany

Call for APEX Proposals

Summary

In 2022, the Atacama Pathfinder Experiment (APEX) partnership between the Max-Planck-Institut für Radioastronomie (MPIfR), the European Southern Observatory (ESO), and the Onsala Space Observatory (OSO) formally ended. From 2023 on, APEX is a sole project of the MPIfR, hosted and operated by ESO. OSO continues to provide its SEPIA receiver for APEX. Operations are restricted to observations in the night and morning shifts, hence focussing on the best weather conditions. Observations are therefore in general conducted between 20:00 and 12:00 local time and the corresponding visibilities of targets should be considered. Half of the MPIfR observing time is made available to the Max Planck Society (MPS) community, including MPIfR, and also to German universities and research institutes, all on a competitive basis.

Proposals for large programs (100 or more hours per semester) with signifcant scientific impact are encouraged. Due to their high operational and observational load, they require a substantial MPIfR participation.

In this call, proposals for APEX observing requests for the period from 20 March to 24 July 2025 are solicited.

Telescope and Instruments

APEX is a 12m submillimeter telescope situated at an altitude of 5107m on Llano de Chajnantor in Chile. For details on the facility and its operation we refer to http://www.apex-telescope.org.

The SEPIA and nFLASH receivers will be offered:

- the SEPIA receiver covers with three cartridges ALMA Band 5 (159-211 GHz, OSO PI receiver), and ALMA Band 7 and 9 (272-376 GHz, ~590-725 GHz, both facility). More information about SEPIA can be found at: http://www.apex-telescope.org/ns/instruments/sepia. **Note that due to repairs the Band 7 part of SEPIA will not be available this semester.**

- The facility receiver nFLASH will provide two frequeny channels, nFLASH230 (188-282 GHz) and nFLASH460 (~377-500 GHz). Simultaneous observations with both nFLASH channels are possible with a slightly reduced performance due to losses in the dichroics.

All these receiver channels provide dual polarization 2SB observations, SEPIA345/690 and nFLASH230 with 8 GHz bandwidths for each sideband and SEPIA180 with 4 GHz. For nFLASH460 an increased IF range of 4-10 GHz has been tested and can be used if required.

In addition, the PI LASMA 345 GHz heterodyne camera will be available in collaboration with the PI team (contact [wyrowski@mpifr-bonn.mpg.de]). Observing requests will be on shared risk and require prior coordination with and approval by the PI team, who will also provide details of the PI instrument performance. LASMA is a 7 pixel array receiver for the 345 GHz atmospheric window, providing sideband-separated data with up to 6 GHz each (IF range 4-10

GHz), tunable within 273 to 374 GHz. The complexity of the instrument operation and calibration require a high degree of collaboration and coordination with the MPIfR PI team.

N3AR, the new 3mm receiver installed in the C-cabin, is currently in commissioning. It offers in the 70 to 115 GHz atmospheric window dual polarization observations of both sidebands with 8 (soon 12) GHz bandwidth each. Typical receiver temperatures are 40-45 K (SSB). Observations together with nFLASH230 are optional, although with increaded noise in this channel. Proposals will be only accepted on a shared risk basis, excluding large projects, provided that science commissioning will be finished this semester. For more information contact for observations wyrowski@mpifr-bonn.mpg.de or more technical details bklein@mpifr-bonn.mpg.de.

Observing Time Estimates

Observing time estimates for the facility and PI instruments should use the observing time calculators available on the APEX web site: http://www.apex-telescope.org/ns/observing-time-calculators. Note that there is also an estimator for On-The-Fly mapping available which should be used.

Proposal Submission Guidelines

Proposals should be submitted as a single PDF file using the templates provided at http://www.mpifr-bonn.mpg.de/apex/proposals. They should contain as a minimum the following information:

- Principal Investigator and co-Investigators (+ institute and PI email)
- Abstract
- Scientific Justification (Up to 2 pages, 4 for large programs), plus 2 pages for figures and tables
- Source list (R.A., Decl., equinox J2000)
- Required weather conditions in terms of PWV
- Observing time estimates, based on the above mentioned time estimator
- Names of experienced observers willing to assist with the observations (observation setups and remote or at the site assistance)
- In case of multi-instrument proposals, a breakdown of time for each instrument is requested.

Proposals will be assessed on grounds of scientific merit. In proposals that combine MPIfR observing time with time contributed from a third party (e.g. Chile), it shall be stated how much time will be requested /has been granted from this source.

In general, it is expected that successful proposers of larger programs will support the observations either in Chile or remotely. Projects will be carried out as pool observations by observers from the MPIfR together with the APEX staff. **In case of significant contributions by observers to the project, it should be considered to include them into the resulting publications.** A health certificate is required for proposers interested to participate in the observations at the high altitude site (for information, contact the APEX Project Scientist Friedrich Wyrowski [*wyrowski@mpifr-bonn.mpg.de*]). No travel support can be provided.

Deadline for submission of proposals

All proposals should be sent to *apex@mpifr-bonn.mpg.de* by Thursday, 20 February 2025 (18:00 CET).