Max-Planck-Institut für Radioastronomie

Auf dem Hügel 69 53121 Bonn Germany

Max Planck Society Call for APEX Proposals

Summary

The MPIfR has access to 49% of the observing time at the Atacama Pathfinder Experiment (APEX) telescope. Half of this time will be made available to the Max Planck Society (MPS) community, including MPIfR, and also to German universities and research institutes, all on a competitive basis.

In this call, proposals for APEX observing requests for the period from 20 March to 12 August 2021 are solicited. In response to the COVID-19 pandamic, APEX did not observe in the first semester 2020. Since fall 2020, APEX is operating again in a restricted mode. Operation was ramped up to two observing shifts covering the night and morning hours. For this call, we expect this mode of operation to be the baseline, but APEX might adjust operations during the year depending on the evolution of the crisis.

Note that there have been several large programmes that are performed as partnerships between the MPIfR and other institutes. For these, the non-MPIfR partners have successfully applied for ESO time. Since Germany is a major ESO member and in view of the heavy over-subscription of Max Planck Society time, we encourage all interested groups to consider applying alternatively for ESO observing time. In the past, such proposals to ESO have benefited from matching offers of MPS time. To help coordination, please contact the APEX Board chairman, Prof. Karl Menten, in case you are interested in such a multi-institute programme.

Telescope and Instruments

APEX is a 12m submillimeter telescope situated at an altitude of 5107m on Llano de Chajnantor in Chile, and is a collaboration between the MPIfR Bonn, the European Southern Observatory and the Onsala Space Observatory. 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, ESO/OSO PI receiver, 1 year proprietary time), 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/instruments/pi/sepia.
- 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 planned but have not yet been implemented. For the preparation of the proposals this mode should not be considered.

All these receiver channels provide dual polarization 2SB observations, SEPIA345/690 and nFLASH230 with 8GHz bandwidths for each sideband and SEPIA180 and nFLASH460 with 4GHz. Note, that **observations taken with the facility instruments will have a proprietary time of 3 years** after which they become publicly available in the ESO archive.

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

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/observing. 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 plus 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 inter-agency proposals it shall be stated how much time will be requested /has been granted from another APEX partner.

In general, it is expected that successful proposers of larger programs will support the observations in Chile. Projects will be carried out as pool observations by a team of observers from Bonn together with the APEX staff. While travel restrictions to Chile still apply during the pandemic, observations will be supported remotely from Bonn. **In case of significant contributions by observers to the project, it should be considered to include them into the resulting publications.** Proposals for PI instruments will be executed by the PI teams, but – depending on the actual load – support at the site may be requested. 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 by the MPIfR.

Deadline for submission of proposals

All proposals should be sent to *apex@mpifr-bonn.mpg.de* by Friday, 19 February 2021 (18:00 CET).