

Call for Proposals on IRAM Telescopes

The deadline for submission of observing proposals on IRAM telescopes, both the NOEMA interferometer and the 30-meter telescope, covering the scheduling period 1 December 2019 to 31 May 2020, is

12 September 2019, 17:00 CEST (UT + 2 hours)

IRAM proposals should be submitted through the *Proposal Management System* (PMS) at URL:

<http://pms.iram.fr/>

PMS provides on-screen instructions to guide the proposal editor through the submission process. The procedure consists in filling in an on-line form with the details of the requested observations (source coordinates, receiver setups, array configuration, etc.), and to upload a single file in pdf format containing the scientific and technical justification. A \LaTeX template is provided from the PMS submission page for your convenience. This file may be customized, or the pdf file can be generated with another software, but in any case **proposers should respect the following requirements**: (1) A normal proposal may contain up to two pages of text describing the scientific aims and the technical justification (4 pages for a Large Program, see below) (2) up to two pages of figures, tables, and references may be added, but the text may not be mixed with figures, tables, and references, and (3) the font size must be 11pt.

For a proposal to be complete, PMS requires that all authors validate their identity (e-mail and affiliation) and their participation to the proposal before the deadline. The editor of the proposal will have to send invitations to all authors through PMS by clicking an *invitation* button. We urge proposal editors to invite the authors through PMS well before the deadline to give them enough time to validate their identity before the deadline. Authors that fail to validate their participation will automatically be dropped from the proposal.

PMS will be opened for submission of new proposals about two weeks before the deadline¹. Proposers may modify their proposals in PMS until the deadline, in which case the *submit* button must be activated again after modification of the proposal. Please avoid last minute submissions when the network could be congested. If you experience any difficulty with the submission process in PMS, please contact us at pms-feedback@iram.fr for help. You may also use this e-mail address for bug reports, general questions and comments.

Detailed information on time estimates, special observing modes, technical information and references for both the NOEMA interferometer and the 30-meter telescope can be found on the IRAM web site, under the **science users** tab:

<http://www.iram-institute.org/>

Proposers are encouraged to use the CDS (*Centre de Données astronomiques de Strasbourg*) to check whether a source has already been observed at the 30-meter telescope or the NOEMA interferometer. We recommend to use the **VizieR Catalogue Service** to query² the header data of IRAM observations obtained since September 2009 for the 30-meter telescope, and since December 1991 for PdBI/NOEMA.

The source areas to be mapped by the guaranteed time large NIKA2 programs are "fenced" against new continuum 2mm/1mm mapping projects at the 30-meter telescope or continuum driven projects at NOEMA. To inform observers, proposal abstracts and a complete source list are available on the **NIKA2 home page**.

Following a decision of the IRAM partners to value asymmetric investments through dedicated observatory type GTO³ programs, the MPG-IRAM Observatory Programs (MIOP) will start observations toward the end of the summer semester 2019. Respective programs are run under Large Program (LP) policy with special source protection. The policy is thus equivalent to the one which has been adopted for the NIKA 2 GTO programs. MIOP has a duration of five years with 225 h NOEMA observing time per semester. The abstracts of the individual MIOPs and related source lists can be viewed on the **MIOP web page**

¹PMS remains open at all times for submission of Director Discretionary Time proposals.

²search *IRAM* as catalogue name.

³guaranteed-time observations

We encourage the submission of **Large Observing Programs (LPs)** that require more than 100 hours of observing time and that address strategic scientific issues, using NOEMA or the 30-meter telescope with EMIR or HERA. However, as a significant investment of technical time is still needed for the NOEMA project, restrictions in terms of available observing time for NOEMA LPs will apply for the upcoming winter semester 2019, similar to the previous observing semesters. You may consult the **Large Program Policy** on the **IRAM web site** for further details.

The 30-meter telescope will be open for 3 mm and 1 mm VLBI proposals. A VLBI participation of NOEMA in these frequency bands will be on a best effort basis for the upcoming winter semester.

Publications resulting from NOEMA or 30-meter telescope observations should mention this in an acknowledgment “Based on observations carried out under project number XYYZZ [XXX-YY] with the IRAM NOEMA Interferometer [30-meter telescope]. IRAM is supported by INSU/CNRS (France), MPG (Germany) and IGN (Spain)”. IRAM welcomes an acknowledgment to the IRAM staff for help provided during the observations and for data reduction.

C. Kramer & M. Krips

The 30-meter Telescope

Proposals for three instruments will be considered for the coming semester:

1. EMIR, offering four bands at 3, 2, 1.3, and 0.9 mm wavelengths in both polarisations,
2. HERA, the 9 pixel dual-polarization heterodyne receiver array operating at 1.3 mm wavelength, and
3. NIKA2, a continuum camera working simultaneously at 1.15 and 2 mm with a field-of-view of 6.5’.

The two heterodyne frontends, EMIR and HERA, can be connected to a suite of narrow- and broad-band spectrometers with resolutions ranging from 3.3 kHz to 2 MHz, and bandwidths of up to 32 GHz.

During the winter semester emphasis will be put on observations at the shorter wavelengths but 3 mm proposals are also encouraged, particularly if they are suited for medium or low quality weather backup. Projects with sources in the LST range 10-14 and 22-23 have a higher chance of being observed as, in particular, the LST ranges of Orion/Taurus and of the Galactic Center region are usually much over subscribed.

As in previous semesters, we will offer several weeks of pooled observations in order to optimize the use of the telescope.

Proposers are requested to use the EMIR and HERA time estimators which are available online via the **IRAM 30-meter telescope webpage**.

NIKA2 projects will be observed in one-week blocks of pooled observations. Proposers are requested to use the NIKA2 time estimator python script which is available online via the **NIKA2 home page**. Sensitivities are unchanged. The PIIC/GILDAS software developed by IRAM will be available starting in October, not only for the online (on-the-fly) quick view data reduction, but also for offline data reduction (see below). The afternoon hours are often not suitable for NIKA2 observations. In this case, the pool manager may decide to switch to 3mm EMIR pooled backup projects. It may take several weeks after a pool week, during which the calibration scans are analyzed, before final calibration products become available to the users. These products comprise the KID geometry, KID flux calibration factors, list of flagged KIDs, sky opacities. Tests of NIKA2 1 mm polarimetry have progressed in the past months. However, it is still too early to offer this mode to the community.

A detailed account of the current observatory capabilities is available in a separate document on the **Call for Proposals web page**.

What is new?

In Spring 2019, the dedicated fiber link connecting the telescope to IRAM/Granada and the internet, has been further improved. It now runs at speeds of up to 10 Gbit/sec.

During the summer time, the PIIC NIKA2 data reduction software has been successfully tested by IRAM staff - by processing a number of case studies - and has been validated. In October this year, PIIC will be available to users⁴, along with a concise user guide. Users are encouraged to employ PIIC for their analysis.

Additionally, the well known IDL pipeline developed by the NIKA2 consortium for online and offline data reduction has been also further updated.

A conference on “Observing the millimeter universe with the NIKA2 camera” was organized by the Laboratoire de Physique Subatomique & Cosmologie (LPSC) in Grenoble on 3-7 June 2019 presenting results obtained during the first almost two years of science operation of NIKA2⁵.

C. Kramer & M. Sanchez Portal

The NOEMA Interferometer

What is new?

The construction of Antenna 11 is on schedule and work on the baseline extension has been started. Antenna 11 is foreseen to join the array by the end of the upcoming winter semester. Full NOEMA with 12 antennas and baselines ranging up to ~ 1700 m is foreseen to be available by the end of 2021.

Main capabilities for NOEMA offered in the current Call:

Correlator: The wide-band correlator *PolyFiX* processes an instantaneous bandwidth of 31 GHz that is distributed over two 7.744 GHz wide sidebands and two orthogonal linear polarisations for a default channel spacing of 2 MHz. Additionally, a large number of high spectral resolution windows with channel spacings of 62.5 kHz can be defined within each sideband and polarisation.

Bands: Bands 1 ($\lambda \approx 3$ mm), 2 ($\lambda \approx 2$ mm) and 3 ($\lambda \approx 1$ mm) will be available for this Call, while band 4 ($\lambda \approx 0.8$ mm) will not be offered. The nominal sky frequency ranges covered by each of the three available bands are specified in Table 3 in the specific document on the **current status of NOEMA**.

Software: The use of the **aug19** version (or later) of GILDAS is mandatory to prepare your proposals, especially its package **ASTRO** needs to be used to configure the *PolyFiX* spectral setups.

Configurations: During the winter semester we plan to schedule three different configurations; a preliminary configuration schedule is outlined below (see Table 1). The stations used in the three configurations are given in Table 2. Adjustments to this provisional configuration planning will be made according to commissioning requirements in the frame of NOEMA, proposal pressure, weather conditions, and other contingencies.

A detailed description of the current NOEMA capabilities and organizational considerations are given in a separate document on the Call for Proposals pages (or click directly on this link for the pdf document).

M. Krips

⁴<http://www.iram.fr/IRAMFR/GILDAS/>

⁵<https://lpsc-indico.in2p3.fr/Indico/event/1765/page/0>

Table 1: Configuration Schedule for the Winter 2019 period

Conf	Scheduling Priority
C	November – December
D	December – January
A	January – February
C	February – March
D	March – May

Table 2: Configurations of the ten antenna array

Name	Stations									
10A	W27	W23	W08	E68	E24	E16	E03	N46	N29	N20
10C	W23	W20	W09	E23	E18	E10	E03	N20	N17	N11
10D	W12	W08	W05	E10	E04	N17	N13	N09	N05	N02

Guidelines for Observing Time at the IRAM Facilities

Considering the much increased time requests for the IRAM telescopes over the last few years, taking into account the science operations of ALMA, and considering the substantial new investments of the IRAM partners into upgrading the capabilities of the NOEMA interferometer, the following guidelines for allocation of telescope time are to be considered:

1. In deciding on proposal rankings the Program Committee is requested to take into account the publication record and impact of the proposers with previous IRAM telescope time allocations.
2. The proposers should note in their application whether the same or a similar proposal was or is intended to be submitted to ALMA, in which case a special justification is required why IRAM telescope time is needed.
3. Up to 10% of the available observing time may be invested into projects submitted by PIs affiliated with institutes in non-IRAM partner countries.
4. The fraction of time for Large Programs (a detailed description is given on the IRAM website) can be expanded to a total of about **50% of the scheduled telescope time on the IRAM 30-meter telescope while a smaller fraction will be reserved for NOEMA. A significant amount of technical time is still needed to upgrade the observatory to the full NOEMA capabilities.** In order to ensure proper management of these programs in close interaction with the IRAM observatory, including the provision of suitable archive data products for the general scientific community, only programs led by a PI located in one of the IRAM partner countries will be considered.
5. Once accepted, PIs of Large Programs cannot submit other proposals (as PI) during the active time of the Large Program.

Finally, we inform that observing time has been reserved by the IRAM partners for the mutually agreed “Observatory Program” MIOP as of the summer 2019 observing semester.

Data policy

The IRAM data policy is as follows:

- IRAM organizes storage of raw and online calibrated data for the 30-meter telescope and storage of raw data for PdBI/NOEMA on unlimited time scales.
- Header information of PdBI/NOEMA observations later than December 1991 can be found [here in the CDS](#) (*Centre de Données astronomiques de Strasbourg*).
- Header information of 30-meter telescope observations later than September 2009 can be found [here in the CDS](#).
- Data from all projects are stored in the **IRAM Data Archive**. For PdBI/NOEMA raw data are stored while for the 30-meter telescope the online calibrated data are archived. Programs are distinguished between normal programs and Large Programs.
 - Data from Large Programs are public also in calibrated format after an 18 month proprietary period (counting from the end of the last semester of observations) and are accessible through the **IRAM Large Program Archive**.
 - The data of normal projects can be requested after a three year proprietary period (again counting from the end of the last semester of observations). The detailed procedure is described on the **IRAM Data Archive** web page.

RadioNet Travel Funds

Starting January 1, 2017, observations with the IRAM facilities are supported by RadioNet under Horizon 2020, the European Framework Program for Research and Innovation. Within this program, IRAM is committed to offering Transnational Access (TA) for scientists from all over the world, an initiative aimed at facilitating access to radioastronomical infrastructures and enabling scientists to conduct research at the forefront of technological innovation.

All TA-supported projects that are scheduled at the NOEMA interferometer or at the 30-meter telescope must acknowledge the support from the European Union by including the following sentence in the publications resulting from their observations: *The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 730562 [RadioNet].*

As part of this initiative, travel funds are available to support visits of TA eligible astronomers engaged in research with the IRAM facilities. Travels may be supported to the 30-meter telescope for observations (contact: C. Kramer) and to IRAM Grenoble for the reduction of NOEMA data (contact: J.M. Winters). The **RadioNet home page** provides first information. The Principal Investigators of IRAM proposals eligible for TA funding will be informed individually.

C. Kramer & J.M. Winters