

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 June to 30 November 2021, is

18 March 2021, 17:00 CET (UT + 1 hour)
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IRAM proposals should be submitted through the *Proposal Management System* (PMS) at URL:

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

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 L^AT_EX template is provided on 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 to three 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/EN/>

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 large guaranteed-time (GT) programs with NIKA-2 and the large MPG-IRAM Observatory Programs (MIOP) are run with special source protection. The NIKA-2 GT programs are fenced for the 2mm and 1mm bands against new continuum mapping projects at the 30-meter telescope or continuum driven projects at NOEMA. Similarly, all MIOP observing fields are protected against any new observing requests for which the science goals reproduce in large parts those of the respective MIOP. Proposal abstracts and source lists are available on the **NIKA-2 home page** and the **MIOP home page**.

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. However, as a significant investment of technical time is still needed for the NOEMA project and a large number of GT programs are already running at NOEMA, restrictions in terms of available observing

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

²search *IRAM* as catalogue name.

time for NOEMA LPs will apply for the upcoming summer semester 2021, 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 participate in 3 mm VLBI observations within the GMVA network during the upcoming summer semester. A VLBI participation of NOEMA will be offered on a best effort basis. VLBI proposals for 3 mm shall be submitted via the NRAO submission tool. Links and more information on the reviewing process are provided at the [GMVA Website](#). All GMVA proposals requesting time on the IRAM observatories are also reviewed by the IRAM Program Committee.

Publications resulting from observations with NOEMA or the 30-meter telescopes should mention this in an acknowledgment “Based on observations carried out under project number XXXYZ [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

What is new?

Owing to the still ongoing COVID-19 pandemic, all observations will be conducted in remote mode for the foreseeable future. This mode has been successfully used throughout the past months, since April 2020.

Pooled remote observing weeks with NIKA-2 and EMIR backup projects have also been successfully established. To large parts this was made possible thanks to the flexibility and perseverance of the remote observers. In addition, IRAM staff had organized a 2-days internal training to further improve and broaden knowledge on NIKA-2 operation; the possible cycle times of the cryostat have been expanded; the remote user guide has been updated; and the 10 Gbit/s fiberlink between Granada and the telescope has been well maintained.

Commissioning of the NIKA-2 1.2 mm polarimetry mode made good progress thanks to a dedicated test week in November 2020, which benefited from good weather conditions. Detailed analysis of the data, including assessment of the instrumental polarization and sensitivity performance, is ongoing. A commissioning report will be released by the polarization team in the coming months, as a necessary step towards offering the polarimetric mode to the community.

Starting with the upcoming summer semester, the small 9-pixel 1 mm heterodyne array HERA is not offered any more for science observations. In the course of 2021, it is planned to start testing small 3 mm and 1 mm heterodyne focal plane arrays, which are currently being assembled and tested in the laboratory at IRAM/Grenoble, and which are prototypes of the planned large new array receivers.

A major upgrade of the 30-meter telescope is planned for 2022 when the surface of its primary mirror and its drive system shall be realigned and refurbished. All science observations will probably be stopped between March and November 2022, shortening the winter semester 2021/22 and cancelling the summer semester 2022. Proposal writers should take this into account when planning for new projects.

Main capabilities for the 30-meter telescope offered in the current call:

Proposals for two frontends will be considered for the coming semester:

1. NIKA-2, a continuum camera working simultaneously at 1.15 and 2 mm with a field-of-view of 6.5',

2. EMIR, offering four bands at 3, 2, 1.3, and 0.9 mm wavelengths in both polarisations

The heterodyne frontend EMIR 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 summer semester emphasis will be put on observations at the longer wavelengths. Observations at short wavelengths will be scheduled toward the end of the semester in October/November. 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. We plan to offer several weeks pooled observations with NIKA-2 and with EMIR in order to optimize the use of the telescope. Proposers are requested to use the EMIR time estimator which is available online via the [IRAM 30-meter telescope webpage](#) or the NIKA-2 time estimator python script which is available via the [NIKA-2 home page](#). Sensitivities are unchanged. The PIIC/GILDAS software for NIKA-2 is used for the online on-the-fly quick view data reduction and is also available for offline data reduction. To ensure an efficient use of telescope time in cases where weather conditions are not suitable for NIKA-2 observations, pool observers may be requested to support EMIR 3mm backup projects.

An updated version of 30-meter capabilities document is available on the Call for Proposals page.

C. Kramer & M. Sanchez Portal

The NOEMA Interferometer

What is new?

Scientific observations at NOEMA were maintained at a high efficiency level since the beginning of the COVID-19 health crisis in March last year, including the lockdown periods in France. Antenna 11 was successfully commissioned in August and September 2020 and has joined the array for regular scientific observations since then. The commissioning of Antenna 12 is foreseen to start toward the end of the upcoming summer observing semester. The antenna maintenance period is expected to begin by the end of the current winter semester W20 and to last until autumn, including further retrofit activities on the first generation antennas. NOEMA will be operated hence with a 10-antenna array throughout most of the summer observing period. The full twelve antenna array of NOEMA is expected to be available to the scientific community for the start of the winter observing semester W21. The extension of NOEMA's baselines to up to ~ 1700 m is expected to advance at a good pace this year with an anticipated completion in 2022.

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**.

Mostly due to MIOP, pressure will remain very high for the upcoming summer semester

in the 1 mm band using in particular C-configuration, so that the submission of proposals for the 3 mm band and low 2 mm band is strongly encouraged (i.e., requesting observing frequencies below 150 GHz). The significant increase of proposals over the past few years targeting in particular the popular deep fields such as COSMOS or GOODS-North has resulted in much higher pressure factors for sources in the LST range between roughly 07h to 17h. Furthermore, we particularly encourage science targets that can be self-calibrated and/or are circumpolar, both factors that allow for a very flexible scheduling.

Software: The use of the `feb21` 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. In order to help preparing your proposals, an online sensitivity estimator is made available on [this link](#). The sensitivity calculations provided in PMS are based on this online tool as well.

Configurations: During the summer semester we plan to schedule two different configurations; a preliminary configuration schedule is outlined below (see Table 1). The stations used in the two configurations are given in Table 2. Because of pressure from antenna maintenance and retrofit activities, only configurations based on the 10-antenna array are considered for the upcoming summer semester at this moment. 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.

Table 1: Configuration Schedule for the Summer 2021 period

Conf	Scheduling Priority
10D	June – September
10C	October – November

Table 2: Configurations of the ten antenna array

Name	Stations									
10D	W12	W08	W05	E10	E04	N17	N13	N09	N05	N02
10C	W23	W20	W09	E23	E18	E10	E03	N20	N17	N11

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

Guidelines for Observing Time at the IRAM Facilities

Considering the much increased time requests for the IRAM telescopes over the last few years, 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 another observatory, in which case a special justification is required why IRAM telescope time is needed.
3. A fraction of the available observing time (7.5% for NOEMA, 15% for the 30-meter) will 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 and a large number of GTO programs are already running for NOEMA limiting further the available time for new Large Programs.
5. In order to ensure proper management of these programs in close interaction with the IRAM observatories, 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.
6. 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 archives raw and online calibrated data for the 30-meter telescope and 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.

ORP Travel Funds

A new European program, OPTICON-RadioNet Pilot (ORP), has been accepted by the European Commission. It shall start on March 1, 2021 providing travel support similar to RadioNet which terminated end of 2020.

Within this program, IRAM is committed to offering Transnational Access (TA) for scientists from all over the world. 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.

As part of this initiative, it is expected that 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). Whether or not travel is possible depends of course also on the evolution of the COVID-19 pandemic. The Principal Investigators of IRAM proposals eligible for TA funding will be informed individually.

C. Kramer & J.M. Winters