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 2017 to 31 May 2018, is

14 September 2017, 17:00 CEST (UT + 2 hours)

IRAM proposals should be submitted through the ***P**roposal **M**anagement **S**ystem* (**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 should 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 three weeks before the deadline[1]. 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 interferometer. We recommend to use the `VizieR Catalogue Service` to query[2] the header data of IRAM observations obtained since September 2009 for the 30m, and ab initio (1990) for PdBI/NOEMA.

All five guaranteed time programs for NIKA2 will be observed. The source areas to be mapped by these programs are "fenced" against new continuum 2mm/1mm mapping projects at the 30m or at NOEMA. To inform observers, proposal abstracts and a complete source list is available on the `NIKA2 home page`.

We encourage the submission of **Large Observing Programs** that require more than 100 hours of observing time and that address strategic scientific issues, using the 30-meter telescope with EMIR or HERA. You may consult the `Large Program Policy` on the IRAM web site for further details. **Due to the large investment in technical time in the current phase of the NOEMA project,** *Large Programs* **will not be accepted for the interferometer under the current** *Call for Proposals*.

The 30-meter telescope will be open for 3 mm and 1 mm VLBI proposals.

[1] PMS remains open at all times for submission of Director Discretionary Time proposals.
[2] search *IRAM* as catalogue name.

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.

M. Krips & C. Kramer

The 30-meter Telescope

Proposals for three instruments will be considered for the coming semester (1 December 2017 to 31 May 2018):

1. EMIR, offering four bands at 3, 2, 1.3, and 0.9 mm wavelengths in both polarisations, and
2. HERA, the 9 pixel dual–polarization heterodyne receiver array operating at 1.3 mm wavelength.
3. NIKA2, the second generation New-IRAM-KID-Array, 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. 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 30m webpage`.

After several NIKA2 commissioning runs between installation in October 2015 and February 2017 (Adam et al. 2017), a science verification run was achieved in April 2017. Next semester, NIKA2 will be available in open time for up to 10 projects and a total of up to 100 hours. NIKA2 projects will be observed in one-week blocks of pooled observations. A friend-of-the-project from IRAM or the NIKA2 consortium, shall provide help and advice in using the off-line data processing pipeline developed by the NIKA2 consortium, while the GILDAS reduction package for NIKA2 is in preparation. Proposers are requested to use the NIKA2 time estimator python script which has been updated and is available online via the `NIKA2 home page`.

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

What is new?

`MRTCAL` is a new `GILDAS` software package to calibrate EMIR and HERA data. Since February 2017, `MRTCAL` has been in use at the telescope to conduct the online data processing of standard spectroscopic EMIR and HERA data. For the time being, polarimetry (XPOL) and continuum (pointing, focus, skydip) data will continue to be automatically calibrated with the previous software package, `MIRA`. In the future, `MRTCAL` will fully replace `MIRA`.

The last two NIKA2 commissioning runs in February and April 2017 allowed to determine the key properties of NIKA2. Its NEFDs (noise equivalent flux densities), extrapolated to an atmospheric transmission of 1, are 20 and 6 mJy $\sqrt{\text{sec}}$ at 1 mm and 2 mm, respectively. The HPBWs (half-power beam widths) of the main beam are 10.9 and 17.5 arc-seconds at 1 mm and 2 mm, respectively. The relative flux density stability, measured on strong point sources, is better than 7%. The beam efficiencies, as the ratio between the main beam power and the total beam power up to a radius of 250″, are 60% at 1 mm and 75% at 2 mm, respectively. These results and more are described in detail in Adam et al. (2017). It is expected that non-polarimetry science observations can be started in October/November. Commissioning of polarimetry at 1 mm has successfully started in June 2017 and will continue end of November.

C. Kramer

The NOEMA Interferometer

The installation of *PolyFiX* is planned to start end of August 2017 and its commissioning for science operations is foreseen to begin mid of October 2017. According to current projections, *PolyFiX* should be available for standard observations at the beginning of the winter 2017/2018 semester, offering to correlate 9 antennas simultaneously at high spectral resolution and large bandwidths. This sets a major milestone in the construction of NOEMA for unprecedented sensitivity and high flexibility of spectral setups.

PolyFiX will be able to process an instantaneous bandwidth of 31 GHz, i.e. two times 7.7 GHz delivered by the receivers in each of the two sidebands, and in both linear polarizations (= 4 *IF channels* in total). Each IF channel is split into two *basebands* of 3.85 GHz width (*inner* and *outer* baseband) that are fed into the correlator. In total, there are thus 8 basebands which are processed by the correlator. The spectral resolution will be 2 MHz throughout the 15.4 GHz total bandwidth in both polarizations. Additionally, up to 16 high-resolution *chunks* of 64 MHz width can be placed in each of the 8 basebands, providing, in this first implementation step of *PolyFiX*, a fixed spectral resolution of 62.5 kHz in these up to 128 independent chunks.

The GILDAS software ASTRO has been upgraded to help users configure the *PolyFiX* spectral setups. The use of the `jul17` version of GILDAS is mandatory to prepare your proposals.

All antennas are equipped with the new low noise 2SB receivers. The receivers provide two orthogonal linear polarizations in Band 1, 2, and 3. Each of the two polarizations delivers a bandwidth of 7.7 GHz per sideband, LSB and USB. The nominal sky frequency ranges covered are 70.9 GHz to 121.6 GHz for band 1, 124.4 GHz to 183.6 GHz for band 2, and 196.4 GHz to 279.6 GHz for band 3. The on-site receiver performance in the upper half of the IF bands still needs to be evaluated. Band 4 observations will not be offered in this semester.

During the winter we plan to schedule three different configurations (see the table below) using all 9 antennas simultaneously. A preliminary configuration schedule for the winter period is outlined below. 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:

9-Ant Conf	Scheduling Priority Winter 2017/18
C	December
D	December – January
A	January – February
C	February – March
D	March – May

Name	Stations								
9A	W27	W10	E68	E24	E12	E04	N46	N29	N20
9C	W20	W12	W09	E16	E10	E03	N29	N20	N11
9D	W12	W09	W05	E10	E04	N13	N09	N05	N02

A detailed description of the current NOEMA capabilities and organizational considerations are given in a separate document on the `Call for Proposals` pages and on the `NOEMA Documentation web pages`.

Given the short time between the commissioning of *PolyFiX* and the winter season, observation time will be granted on a shared-risk basis only in this semester and all (A and B rated) proposals will be observed on a best effort basis. No proposal will be carried over to a forthcoming observing period in case observations cannot be completed in the winter semester 2017/18.

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, taking into account the science operations of ALMA, and considering the substantial new investments of the IRAM partners into upgrading the Plateau de Bure interferometer into NOEMA, 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. 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.

2. Up to 15% of the available observing time may be invested into projects submitted by PIs affiliated with institutes in non-IRAM partner countries.

3. 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 either of the IRAM telescopes. 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.

4. Once accepted, PIs of Large Programs cannot submit other proposals (as PI) during the active time of the Large Program.

Finally, we inform that the IRAM partners will reserve time for mutually agreed "Observatory Programs" once the NOEMA upgrade is sufficiently advanced.

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 1991 can be found here in the CDS (*Centre de Données astronomiques de Strasbourg*).

- Header information of 30-meter telescope observations later than 2009 can be found here in the CDS.

- 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`.

- Data from normal programs so far had indefinite proprietary time. Following a decision of the IRAM partners in June 2015 the following changes were introduced: Raw data from PdBI/NOEMA or online calibrated data from the 30-meter telescope of individual normal programs may be provided by IRAM after a three year proprietary period (again counting from the end of the last semester of observations) and depending on Director's decision. Multiple large scale requests are excluded.

IRAM does not provide support for data reduction of such retrieved data. Referencing of these data should follow the `IRAM Data Publication Policies` and in addition include at least one reference to publications of the PI team, or the PI name and program number in case the data have not yet been published.

RadioNet Travel Funds

Starting January 1, 2017, observations with the IRAM facilities are supported by RadioNet under Horizon 2020, the European Framework Programme for Research and Innovation. Within this programme, 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 enable scientists to conduct research at the forefront of technological innovation. As part of this initiative, travel funds are now 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: R. Neri). The RadioNet home page provides first information. The Principal Investigators of IRAM proposals eligible for TA funding will be informed individually.

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 programme under grant agreement No 730562 [RadioNet].*

C. Kramer & R. Neri