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EMIR ASSOCIATE SCIENCE TEAM

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SUMMARY

This document introduces the concept and structure of the EMIR Associate Science Team (EAST) and the framework according to which it will be incorporated into the developments associated with EMIR. It also deals with the relationships between the observing proposal generated by EAST and the EMIR Guaranteed Time (EGT).

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LIST OF ABBREVIATIONS

EAOP	EMIR Associate Observing Programme
EASCT	EMIR Associate Science Core Team
EAST	EMIR Associate Science Team
EC	EMIR Consortium
EGT	EMIR Guaranteed Time
EMIR	NIR Multiobject Spectrograph (Espectrógrafo Multiobjeto Infra-Rojo)
GTC	Gran Telescopio CANARIAS
GRANTECAN	Gran Telescopio CANARIAS, S.A.
IAC	Instituto de Astrofísica de Canarias
PDR	Preliminary Design Review
TBC	To Be Confirmed
TBD	To Be Defined

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1. INTRODUCTION

Every common-user instrument devised for a large telescope must have a powerful team of scientists behind it that to some extent represents the future community of users and monitors technical developments while ensuring the fulfilment of the envisaged scientific performance. This is becoming more important with the increasing difficult technological challenges associated with the new generation of astronomical instruments for 10 m class telescopes. This is due not only the technical risks but also to the need to disseminate information concerning the instrument early enough in the building period and promote its future use. The access to modern astronomical instrumentation on large telescopes needs to be programmed well in advance, normally with the setting-up of preparatory programmes, which implies in-depth training in the use of the instrument.

EMIR is currently at the beginning of its fabrication phase; it is a project-driven instrument and has from its inception a science team (formerly called the Instrument Definition Team) organized around an Instrumental Consortium, with a well focused and defined scientific interest (the COSMOS project, <http://www.iac.es/proyect/cosmos/iac-cosmos.html>). The need to extend the astronomical objectives of the programmes that will make use of the EMIR Guaranteed Time (EGT) and to educated the user community in making proper use of its outstanding capabilities have pushed EMIR Consortium (EC) to provide new opportunities for astronomers to become better acquainted with EMIR.

The purpose of this document is to provide a starting point for the organization of the EMIR Associate Science Team (EAST), which will act as a forum for those scientists interested in building an observing programme complementary to that prepared by the COSMOS team, to be developed making use of the EGT.

2. EMIR CONSORTIUM

The definition, composition, roles and additional information concerning the EC can be found in A.1. For ease of reference, some of the paragraphs of this document are reproduced here.

The EMIR Consortium is composed of

- (i) The Principal Investigator*
- (ii) The Co-investigators*
- (iii) Key Technical Persons*

Persons in the above groups, including those scientists defining and monitoring the astronomical capabilities and the operational modes of the instrument, are responsible for the preparation of the instrument over several years. In addition to that, and not pertaining to the Consortium, there are two groups of researchers preparing the scientific exploitation of EMIR and which will make use of the Guaranteed Time awarded by GRANTECAN to the EMIR team: the COSMOS group,

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in charge of the preparation of the Central Programme; and the Emir Science Associate Team (EAST), preparing additional observing programmes.

The Consortium is the specific forum where all the topics concerning the instrument are treated. It is expected that Consortium matters will be discussed following the standard procedures of scientific cooperation, and that consensus will be the rule in the decisions. In case of disputes, only persons in groups (i) and (ii) will have the right to vote on decisions.

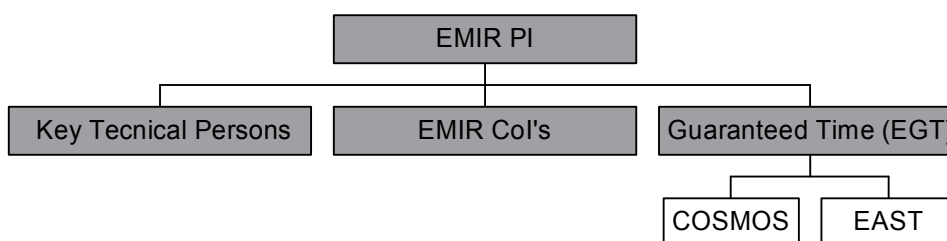


Figure 1 Organization of EMIR Consortium. It only comprises the shaded structures.

Hence, the scientific exploitation of the EGT will be accomplished through two groups: COSMOS (see the above-mentioned web page) and EAST, a description of whose motivation, organization and initial structure is the purpose of this document. None of these groups belongs to the EC in the sense that there are no representatives from these teams in the Consortium. However, EMIR CoIs can, as individuals, also belong to any of those groups.

3. EMIR GUARANTEED TIME

As is customary in the building of any large and complicated instrument, the fabrication team is rewarded by the owner of the telescope installation with a certain amount of observing time, whose use should not be affected by the time allocation committees. Also the observing programmes within this time allocation need not be restricted to the instrument to which it is attached, but can make full use of the whole set of the telescope's facilities. Along these lines, GRANTECAN has established this procedure to compensate the instrument-building teams, together with guidelines to calculate the precise amount of time awarded. At the time of writing this document, the EGT figure has still to be agreed but will be included in the contractual document between the IAC and GRANTECAN. As before, some paragraphs from A.2 are reproduced here to facilitate the use of this document. The reader is referred to that annex for full details.

It is well understood that the amount of time eventually to be allocated to EMIR depends on many aspects regarding the fulfilment of the instrument requirements, in terms of schedule and performances, and will ultimately rely on the final negotiations between the IAC, as the representative of the EMIR Consortium, and GRANTECAN.

The purpose of the charter is the fair compensation of persons involved totally, or for a large percentage of their time, in the technical and scientific preparation of the

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project from the years 1999 to TBC. This charter elaborates on the general rules established in the Letter of Agreement, Article 6A/B. Principles of the compensation with guaranteed time, data rights and authorship are:

- (i) The personal effort put in over the years and*
- (ii) The financial and manpower commitment of their institutions over the years.*

A substantial fraction of the Guaranteed Time will be used in the Central Programme, whose initial definition is described in the Scientific Case of the original EMIR proposal submitted to GRANTECAN, and which is being developed by the COSMOS collaboration. The EMIR input to it will be jointly prepared by the Consortium, balancing the various scientific interests of the members and their institutions, as well as the unique capabilities of EMIR. The prime and co-authorship of proposals to the Guaranteed Time Programme submitted years before the actual observation and data reduction may be changed in the resulting articles in order to comply with the publication rules.

4. EMIR ASSOCIATE SCIENCE TEAM

EMIR is currently at the beginning of its final phase, expected for late 2006, after having successfully passed the PDR in April 2003. It seems natural to begin approaching astronomers with interests in prompt use of EMIR to start designing and preparing the scientific proposals that will make use of the EGT. These contacts will be made on a threefold basis:

1. To gain expertise in extending the plans for proper scientific exploitation of the instrument, which will show its capacities as a common-user instrument to deal with a wide variety of scientific projects.

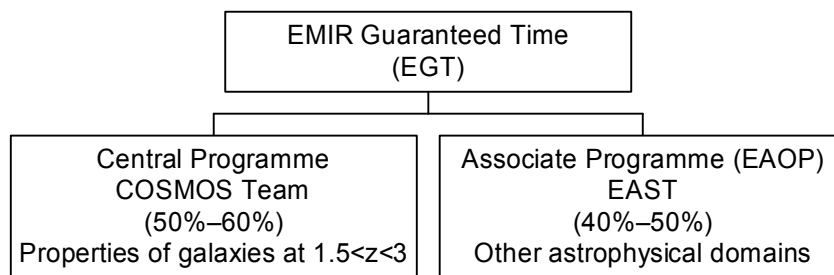


Figure 2 Scheme of the distribution of the EGT

2. To train selected users in EMIR observing modes, verifying what can and what cannot be done with the instrument. This will widen correct knowledge of the instrument and will contribute to its success among the user community.
3. To improve the scientific exploitation of the EGT with the inclusion of selected proposals on the basis of their scientific merit and broad impact on various astrophysical topics.

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EAST will work by preparing observing proposals that will be presented and discussed within the framework of periodic EAST meetings. These proposals will form the EMIR Associate Observing Programme (EAOP), which will form the basis of the EGT, together with the Central Programme prepared by the COSMOS team (see Figure 2). In the following subsections, some basic organization of EAST is drafted together with a preliminary plan for forming the team.

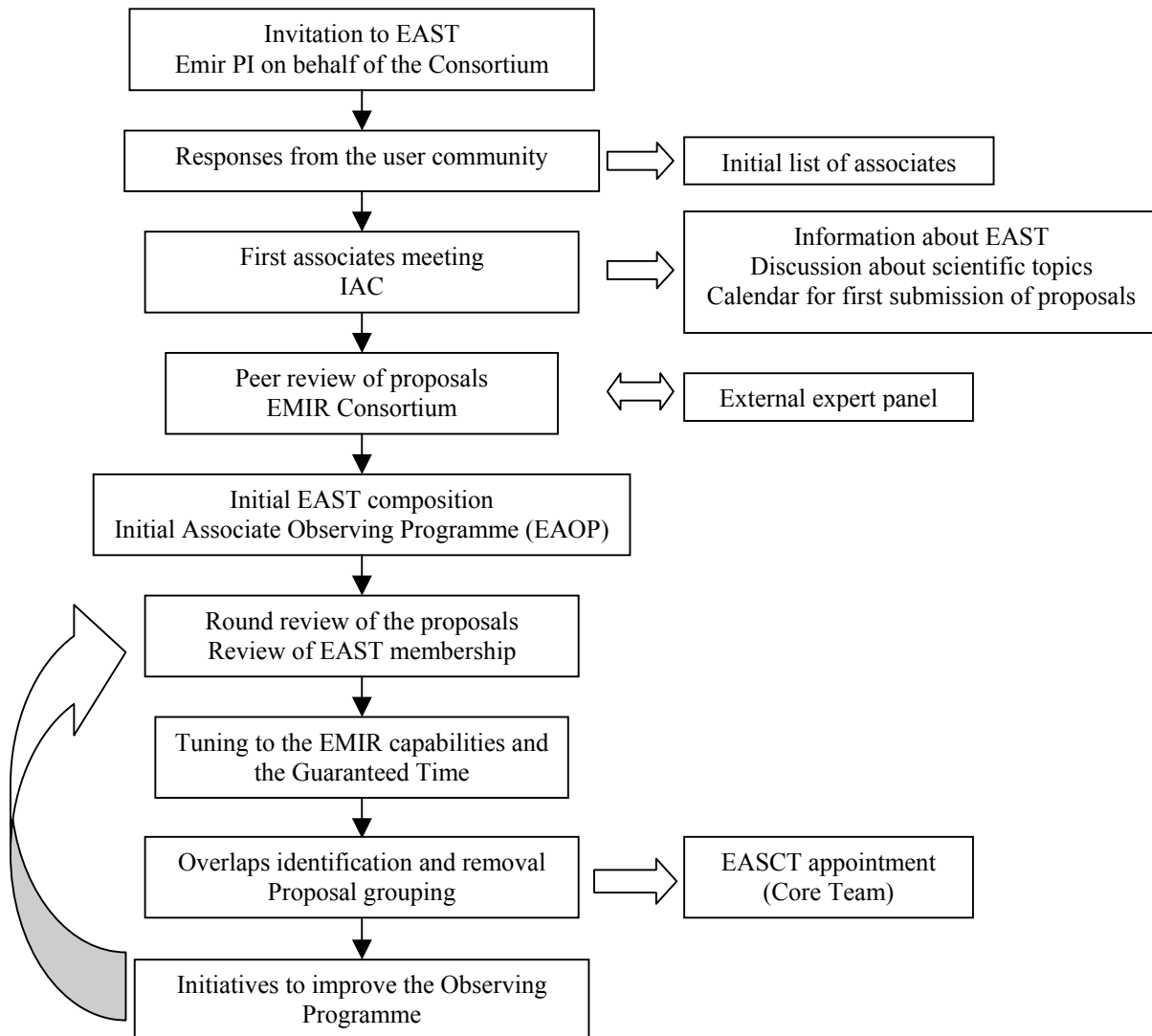


Figure 3 Flowchart showing the working structure of EAST

4.1 Composition of EAST

The EC will make an announcement of opportunity to the GTC user communities (at present Spain, Mexico and Florida) for membership of EAST. The scientific merit and relevance to EMIR of the submitted proposals will be judged by the EMIR PI and CoIs, who may send them to independent experts for consultation; after this peer review, successful applicants will be invited to join EAST. Any astronomer will in principle be accepted in EAST, and

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his/her continuation on EAST will be reviewed periodically on the basis to his/her contribution to the EAOP.

Soon after its constitution, EAST should identify a few broad scientific topics under which all EAOP proposals can be classified. Each general topic will have a chairperson selected among the contributing teams of the proposals on each class. These chairpersons will form the EMIR Associate Science Core Team (EASCT), chaired by the EMIR PI or a person on his behalf, who can decide on a matter if no consensus can otherwise be reached. In Figure 3 this organization is shown in the framework of the working scheme for EAST. It is anticipated that the organization and working rules of EAST will evolve during the EMIR project, gathering also information about the GTC and what other GTC instruments do.

4.2 Objectives and working plan of EAST

EAST's main objective is to motivate and train astronomers in the use of EMIR, as well as tackling the need to make proper use of the EGT. At the same time, this will prove the suitability of EMIR as a common user instrument of the GTC. These objectives will be achieved by preparing observing proposals to be executed primarily with EMIR on the GTC using guaranteed time.

It is expected that the proposals will be fine-tuned iteratively with the help of the entire EAST, which will hold a series of meetings during the building of the instrument. In this respect, a tentative working plan for potential EAST members could be the following:

- a) Identify a scientific topic on which EMIR could make a significant impact and clearly specify that impact. Build a proposing team.
- b) Prepare a preliminary observing plan, whose basic structure is described in §4.3.
- c) Submit the proposal for acceptance in the call issued by the EMIR Consortium.
- d) Discuss the proposals at EAST joint meetings.
- e) Iteratively refine the proposal and include an accurate estimate of the total time it would require at the telescope.
- f) Search for cooperation and synergies within EAST.

In Figure 3 this organization is shown as part of the framework of the working scheme for EAST. An additional objective of EAST is to foster collaboration between individuals and/or teams interested in the scientific use of EMIR and the GTC and to undertake design in advance of common preparatory observational programmes which are essential for fully exploiting the capabilities of the instrument and telescope. Identification of Key Projects to be submitted to the GTC Steering Committee is also one of EAST's tasks.

4.3 Basic structure of the observing proposals

As said in §4.2, each proposal for joining EAOP has, first of all, to identify the scientific topic towards which EMIR will make a substantial contribution and clearly state why and

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how. This can therefore be judged by the EMIR PI and CoIs, the holders of the EGT, who are supposed to have a better understanding of the way EMIR will perform, and by the panel of independent experts to whom the Consortium members could contact. In addition, this will also allow internal discussion with other EAST members.

In addition, the uniqueness of EMIR and the GTC for achieving the scientific results described in the proposals has to be justified. An estimate of the integration time is also required, using the latest version of the EMIR Exposure Time Calculator or the appropriate information contained in the EMIR document set. That information can be accessed through the public EMIR web page (<http://www.ucm.es/emir>). It is expected that these parts of the proposals will be subject to major changes in the iterative tuning with EAST working procedures.

A template for preparing the proposals will be devised by the EASCT and distributed to all EAST members. This will not be done until several iterations have been performed. So the format for the initial proposals is free.

4.4 Proprietary rights within EAOP

Proposals entering into the EAOP will lose their proprietary rights, which will be then managed by the specifications in A.2, subject to the condition that they will be effectively observed within EGT. Any proposal rejected from the EAOP at any given moment before the execution of the EGT will maintain its proprietary rights, which belong the proposing team, following standard practice in the scientific community. The whole EAOP will be maintained by the EMIR PI, or persons on his behalf, who will give full access to the proposals to all the members of EAST. In this sense, all EAST members implicitly and explicitly acquire the responsibility to make honest use of the information accessed via his/her EAST membership.

The PI of each EAOP proposals is the key person to contact if further use of the information is needed.

Any dispute on the use of the EAOP will be dealt by EASCT.

4.5 Round review of the proposals

Once EAST has achieved to an organized level of operation, a calendar for reviewing proposals will be set by EASCT, as shown in Figure 3. This review will be carried out within the framework of EAST, but peer review by external committees is not excluded. Those proposals that fail to reach the expected level of quality and/or adaptability to the performance of EMIR, established in each round, will be excluded from Observing Programme as will their scientific teams from EAST.

5. RELATIONSHIP OF THE EAOP AND THE EGT

In principle, the EAOP will be built on the basis of making full use of the allocated fraction of the EGT. As a baseline, this fraction will range between 40% to one half of the global EGT.

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However, it might be anticipated that some of the EAOP proposals cannot enter into the EGT for any number of reasons that may or may not be directly related to their scientific merit but to the limited amount of observing time allocated in the EGT. Those proposals will be invited to be submitted to the GTC Open Time and/or be elected as GTC Key Projects, should this concept is finally accepted by the GTC Steering Committee.

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ANNEXES

A. LIST OF REFERENCE DOCUMENTS

A.1	Letter of Agreement
A.2	Charter on the Data Rights and Distribution of Guaranteed observing Time in the EMIR Consortium