Integrating and strengthening the European Research Area

ERA-NET

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1 Introduction

Many research projects in astronomy are conducted within transnational collaborations or consortia, be it observational/interpretative work, survey work, theoretical research projects or larger-scale instrumentation R&D projects. As special cases we mention here instrumentation projects for the major European facilities like ESO's VLT and the upcoming E-ELT, and the facilities on the Canarias which are often if not always realized by European bi- or multi-national instrument consortia. Recent examples in this context are second generation instruments for the VLT like KMOS, MUSE or GRAVITY, the recently started design work for the wide-field spectrograph WEAVE for the William Herschel Telescope on La Palma or the CARMENES project for the Calar Alto Observatory. These projects require funding over typically a decade.

An important condition for facilitating such trans-national research projects is the thematic coherence and simultaneous availability of national funds for the collaborations. When the collaboration is set up and the interested projects partner are looking for funding opportunities they have to take into account as additional constraint, apart from very likely differing funding schedules, that the responsible agencies in their country may not fund the research topic in question.

One of the goals of Task 5.5 of ASTRONET is the development of a plan for the synchronisation of national funding activities. The issue of funding schedule and thematic coordination emerging in this context becomes even more serious when we consider well-coordinated transnational common actions like joint calls. The aspects listed above should usefully be reflected in such a plan. It is certainly realistic not to expect that the European funding agencies align their funding activities with respect to thematic bias and schedule on short to medium term timescales as such measures touch deeply into science policy in the different countries. What we can achieve however is to draw the European landscape of research funding in the "two dimensions" of timeline and thematic bias. In this way we provide a tool to help synchronize science activities with respect to funding.

This report provides a database to both funding agencies and the scientific community containing information for the implementation of joint transnational research projects in terms of national timelines and thematic biases. The agencies involved in ASTRONET consider this approach as reasonable and feasible in terms of a first step towards synchronisation of national funding activities which can help improving the conditions for setting up common research projects in the near future.

2 Proposed plan for actions towards synchronization

2.1 Database reflecting national funding cornerstones

The overall lack of coordinated funding timelines of research in the field of astronomy constitutes a challenge for internationally coordinated funding activities including joint calls. Furthermore, while transnational coordinated projects are managed at the international level the funding of each national project partner takes place at the national level and normally national funding modes and schemes underlay in the procedures. Understanding the different national funding schemes in terms of timing and thematic constraints is therefore an important aspect of coordinated common actions.

As a first step we used the survey on funding procedures conducted in ASTRONET-1 as background information. The survey had revealed a broad range of timelines and periodicities in funding programmes implemented by the ASTRONET partner at that time. With a new targeted questionnaire (see Appendix) we updated this available information, collected new information from additional ASTRONET partners and supplemented with additional information on timelines and periodicities. The result of this deliverable is a coherent database providing basis for first steps towards synchronisation of national funding activities across ASTRONET partner agencies.

The essential elements of the proposed approach are:

1. Collecting the basic information on funding programmes implemented by the ASTRONET partner agencies on a regular basis.
2. Collect the key data on the forthcoming calls of ASTRONET partner agencies.
3. Bundling this information in a database and framing an integrative picture of the funding landscape as mentioned above (forthcoming calls) for the next 3 years across the agencies involved.
4. Making publicly available this structured information on national funding with the links to the announcement information.
5. Providing regular updates of this database.

In order to realize this approach a survey was conducted among the ASTRONET involved agencies. The survey addressed following funding aspects:

- Announcement of a call for proposals
- Funding mode
- Eligibility of subject areas
- Flexibility of application timeline

In the following we describe these aspects in more detail:

Announcement of a call for proposals

This gives information about schedules of national funding. Some agencies release regularly announcements of calls for proposals with fixed deadlines, others offer permanently open application processes meaning that in this case proposals are accepted permanently at any time.

Funding modes

The term “funding mode” is used in the following to refer to the fact that the eligibility of the themes is handled differently by the various FAs. We distinguish three different modes of funding:

- non-thematic
- thematic
- core strategic.

If an agency follows a scheme of funding purely curiosity-driven applications which are selected on scientific excellence as the only criterion this is called here “non-thematic funding”. The second mode is called thematic funding because eligible themes are pre-selected by the FA or another authority (a ministry for example). A third way is funding of core strategic themes. These usually have long-term science policy aspects, like e.g. funding of instrumentation programmes for the VLT or E-ELT.

Eligibility of subject areas

This is information about alignment of national funding activities. Here we tried to adopt the information in overall research areas referring to ground-based astronomy, space astronomy, solar and planetary science, and astroparticle physics.

Flexibility of application timeline

Possibility for flexible timing of national funding in case of joint calls for proposals for transnational research projects.

2.2 First steps towards synchronization

Here we summarize the first steps to be taken towards the synchronization of activities taking all of the above into account:

1. Create a database by regularly collecting information from the partners on newly released calls including thematic constraints, deadlines, budget information if publicly available.
2. Publish the information on the website of ASTRONET on open calls/programmes which is publicly accessible also for the science community. Initially the database described above will be used.
3. Expand the database by adding information for further funding agencies, primarily but not exclusively ASTRONET partner agencies.
4. Maintain and regularly update the database.

3 Current status of the database

The actual status of the database is represented below in tabular form (2 tables) containing the available results of the questionnaire as of end October 2013. Both tables will be displayed on a ASTRONET- webpage and will be regularly updated. Table 1 gives an overview of the currently open and future calls. For illustration the printed version of Table 1 below reflects the current status (as of November 2013) of open and future calls. Table 2 summarizes the basic information on calls and application procedure, respectively.

Table 1 Currently open and future calls

Year	Agency/Country Pro-gramme/Action	Deadline	Call subject/constraints	Web link
Perma-nently open	Austrian Science Fund FWF (AU)	No dead-line	Any basic science subject is eligible for funding apart from instrument development for space-based astronomy and satellites.	http://www.fwf.ac.at/en/international/funding-categories-bilateral-agreements.html
Perma-nently open	DFG (DE) Individual Grants Programme	No dead-line	No call subject	http://www.dfg.de/en/research_funding/programmes/individual/index.html
2013	BMBF (DE) Collaborative funding (Ver-bundforschung)	1.12.2013	Ground-based astrophysics and astroparticle physics - Development and construc-tion of innovative instrumenta-tion - Designing new research tech-niques and methods - Development of key compo-nents and basic technologies For eligible facilities see web link	http://www.bmbf.de/foerderungen/22706.php
2014	CNRS-INSU (FR)	Oct. 2014	Primarily instrumentation. In principle, ground-based as-tronomy, space astronomy, particle astrophysics, and solar and planetary science are all eligible subject areas. Re-strictions to space astronomy and to particle astrophysics.	http://www.insu.cnrs.fr/node/4431
2013/ 2014	ANR (FR)	Oct.2013 – pre-proposition Apr.2014-proposition	- Post-doc return program - Non thematic call 'Défis de tous les savoirs' Thematic call 'Défis socié-taux'	http://www.agence-nationale-recherche.fr/financer-votre-projet/appels-ouverts/
2014	STFC (UK) Astronomy re-search Grants	Februar 2014	- ground-based astronomy - space astrono-my(exploitation) - particle Astrophysics - solar and planetary science Development of space instru-ments and post launch support fall under the UK Space Agen-cy.	http://www.stfc.ac.uk/178.aspx
2014	MINECO (ES)	Last quar-ter of 2014	- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.29bfd64be21cddc5f09dfd1001432ea0/?vgnextoid=fae4b9746e160210VgnVCM1000001034e20aRCRD&vgnextchannel=fae4b9746e16

				0210Vgn VCM1000001034e20aRCRD
2014	NWO Top Grants (NL)	No periodic application deadline.	- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science Also other(cross-) disciplinary subjects like astro-biology, laboratory astrophysics, theory etc. can be funded.	www.nwo.nl/top
2014	NWO Veni-Vidi-Vici (Innovational Research Incentives Scheme) (NL)	There are periodic application deadlines: ─ Veni: January ─ Vidi: October. ─ Vici: March (preproposals) and August (full proposals)	ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary science. Also other (cross-) disciplinary subjects like astro-biology, laboratory astrophysics, theory etc. can be funded.	www.nwo.nl/vi
2014	CAS (CZ)	Proposals are accepted permanently (at any time) without calls.	- ground-based astronomy - space astronomy - solar and planetary science - strong gravity, stellar astrophysics	www.asu.cas.cz
2014	OTKA (National Scientific Research Foundation) HU	February	scientific excellence	www.otka.hu
2014	INAF (IT)	No periodic deadlines	ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary science.	
2015	MINECO (ES)	Last quarter of 2015	- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.29bfd64be21cddc5f09dfd1001432ea0/?vgnextoid=fae4b9746e160210VgnVCM1000001034e20aRCRD&vgnextchannel=fae4b9746e160210Vgn VCM1000001034e20aRCRD
2015	STFC (UK) Astronomy research Grants	Februar 2015	- ground-based astronomy - space astronomy(exploitation) - particle Astrophysics	http://www.stfc.ac.uk/178.aspx

			- solar and planetary science Development of space instruments and post launch support fall under the UK Space Agency.	
2015	NOW Veni-Vidi-Vici (Innovational Research Incentives Scheme) (NL)	Periodic application deadlines: ─ Veni: May ─ Vidi: October ─ Vici: March (pre-proposals) and August (full proposals)	ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary science. Also other (cross-) disciplinary subjects like astro-biology, laboratory astrophysics, theory etc. can be funded.	www.nwo.nl/vi

Table 2 Basic information on calls and open application procedures

Funding Agency	Announcement of a call for proposals	Funding mode	Eligibility of subject areas	Flexible timeline	Webpage
CNRS/interdiscip-linary mission Program DEFI,PEPS (FR)	Issued generally on the web during winter. A submission at any time is not possible. Winter 2013-2016 Budget approx. 10M€ (from 5 to 50K€)		- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science - Interdisciplinary programs. Collaboration, networking, R&D, small projects, conferences.	No	http://www.cnrs.fr/mi/spip.php?article193
ANR (FR)	Every year: preproposition in October, then selection, then detailed proposition in April (for 2014). Budget approx. 500M€ (programs from 100 to 800K€)	2 to 4 years funding scheme Large projects up to 1M€	- Post-doc return program - Non thematic call 'Défis de tous les savoirs' - Thematic call 'Défis sociétaux'	No	http://www.agence-nationale-recherche.fr/financer-votre-projet/appels-ouverts/
CNRS/INSU (FR)	Issued every year by INSU on September 15th. Submission of proposal is possible only after the call is open. A submission at any time is not possible. Budget: 1,5 to 2M€ (programs from 5 to 100K€)	non-thematic and a core strategic funding scheme. The latter includes medium to long-term projects on hardware development (R&D) with durations of a few years.	primarily instrumentation in principle - ground-based astronomy - space astronomy(restricted to R&D and scientific exploitation, in complement to the French Space Agency CNES) - particle Astrophysics - (main funding is coming from CNRS/IN2P3) - solar and planetary science	No	http://www.insu.cnrs.fr/node/4431
BMBF (DE)	A call is issued every three years, deadline (presently) 1 Dec. Proposals are normally accepted only after the call is open;	core strategic funding scheme which themes selected by the BMBF on advice by scientific councils	ground-based astronomy and ground-based astroparticle physics. Space astronomy and planetary science are not supported by the programme.	No	http://www.bmbf.de/foerderungen/22706.php
INAF (IT)	No periodic deadlines. Application is possible after a call is issued by	non-thematic and the thematic funding mode. Themes for the latter are	ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary science. Particle astrophysics is also funded		

	INAF. Application at any time is not possible.	selected by the INAF Board.	by the *Istituto Nazionale di Fisica Nucleare* (INFN).		
STFC Astronomy (UK)	There is an annual deadline. Application is possible after a call is issued by STFC Application at any time is not possible. February (2014 -2016) Approx. 10,4M€ new commitment per year	The AGP programme supports non-thematic, thematic, and core strategic funding modes. Thematic funding is applied for some funding schemes within associated programmers.	- ground-based astronomy - space astronomy(exploitation) - particle Astrophysics - solar and planetary science Development of space instruments and post launch support fall under the UK Space Agency.	No	http://www.stfc.ac.uk/178.aspx
STFC Programme Research Development (PRD) (UK)	Application is possible after a call is issued by STFC. There are up to four application deadlines per year. Application at any time is not possible.	For the PRD programme STFC applies non-thematic, thematic, and core strategic funding modes. Themes are selected by STFC. Thematic funding is applied for some funding schemes within this programme. Core strategic funding applies to large facilities.	PRD funds: - ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science In addition, particle physics is also funded within this programme.	No	
MINECO (ES)	There is one periodic application deadline per year in the last quarter. Application is possible after a call is issued by MINECO. It is not possible to apply at any time.	thematic funding mode with themes selected by an ad-hoc committee with approval of MINECO and the Council of Ministers.	- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science	No	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.29bfd64be21cddc5f09dfd1001432ea0/?vgnextoid=fae4b9746e160210VgnVCM1000001034e20aRCRD&vgnextchannel=fae4b9746e160210VgnVCM1000001034e20aRCRD
NWO Top Grants (NL)	No periodic application deadline. Application is possible after a call is	For the Top Grants programme NWO applies the non-thematic fund-	- ground-based astronomy - space astronomy - particle Astrophysics - solar and planetary science		www.nwo.nl/top

	issued by NWO. It is not possible to apply at any time. Budget is determined upon issuing the call	ing mode.	Also other (cross-) disciplinary subjects like astro-biology, laboratory astrophysics, theory etc. can be funded.		
NWO Veni-Vidi-Vici (Innovational Research Incentives Scheme) (NL)	There are periodic application deadlines: – Veni: one deadline in January and May the following year. – Vidi: one deadline in October. – Vici: two deadlines in March (preproposals) and August (full proposals) Application is possible after a call is issued by NWO. It is not possible to apply at any time. Budget is determined upon issuing the call	For the *Veni-Vidi-Vici* programme NWO applies the non-thematic funding mode.	ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary science. Also other (cross-) disciplinary subjects like astro-biology, laboratory astrophysics, theory etc. can be funded.		www.nwo.nl/vi
CAS (CZ)	The announcement of calls for proposals is irregular depending of available financial resources. There is no long-term planning of calls. Proposals are accepted permanently (at any time) without calls.	Thematic funding within selected themes	- ground-based astronomy - space astronomy - solar and planetary science - strong gravity, stellar astrophysics - post-doctoral positions	Yes	www.asu.cas.cz
DFG - Individual Grants Programme (DE)	No calls. Proposals are accepted permanent (at any time).	For the *Individual Grants* scheme DFG applies a non-thematic funding	All areas of sciences and humanities are eligible. Therefore ground-based astronomy, space astronomy, particle astrophysics, and solar and planetary	Yes	http://www.dfg.de/en/research_funding/programmes/individual/index.html

		scheme.	science are all eligible subject areas. Subjects covered by calls from BMBF are not funded by DFG.		
OTKA (National Scientific Research Foundation) HU	February/March (in 2014 – February)	Non-thematic funding based on scientific excellence only, core strategic funding, typically long-term	- ground-based astronomy - space astronomy - solar and planetary science - strong gravity, stellar astrophysics		www.otka.hu
Austrian Science Fund FWF, AU	No calls. Proposals are accepted permanent (at any time).Decision on participation in international calls is decided by the board of the FWF, which meets five times per year.	Pure bottom-up funding mode free of any quota for scientific disciplines. The decision of funding is made in the FWF Board on the basis of written evaluation by referees coming strictly outside of Austria. Typically 300k€ per stand-alone project, for up to 36 months.	Any basic science subject is eligible for funding. However, instrument development for space-based astronomy and satellites is funded by the Austrian Research Promotion Agency (FFG).	Yes	http://www.fwf.ac.at/en/international/funding-categories-bilateral-agreements.html

4 Appendix

4.1 Questionnaire for the investigation of the national timelines and thematic constraints of funding programmes

Section I

Name of funding Agency and country:_____

Announcement of a call for proposals

Periodic deadlines Yes/No
if "Yes": please give date

Application of proposal:
possible after a Call announcement with a fixed closing date Yes/No
possible at any time without call
Yes/No

Other mode of announcement (please describe)

Please give name of issuing organisation
Comments:

Funding modes

Non-thematic funding based on scientific excellence only Yes/No

Thematic funding within selected themes Yes/No
if "Yes": please specify who is responsible for theme selection

Core strategic funding, typically long-term Yes/No

Comments:

Eligibility of subject areas

Ground-based astronomy Yes/No

Space astronomy Yes/No

Particle Astrophysics Yes/No

Solar and planetary science Yes/No

More eligible subject areas and date of issue/deadline:

Comments:

Section II

Name of funding Agency and country:_____

Forthcoming calls for proposal within the period of time 2013-2016 in the following areas:
Please list all already known calls

Ground-based astronomy Yes/No (preliminary) issue/deadline(s)_____

Space astronomy Yes/No (preliminary) issue/deadline(s)_____

Particle Astrophysics Yes/No (preliminary) issue/deadline(s)_____

Solar and planetary science Yes/No (preliminary) issue/deadline(s)_____

More eligible subject areas and date of issue/deadline:_____

Thematic constraints (please name the constraints):_____

Budget (if possible):_____

Comments:_____

Comments on flexibility of timelines:_____

Weblink to the calls (very important!!)_____