FLAG-ERA

Joint Transnational Call 2019

for research projects in synergy with the two FET Flagships

Graphene Flagship &

Human Brain Project

Call Announcement

Deadline: 19 February 2019, 17:00 CET

Documents and procedures:	http://www.flagera.eu
FLAG-ERA Joint Call Secretariat:	Sergueï Fedortchenko **+33 1 78 09 80 37** **serguei.fedortchenko@anr.fr**
Indicative budget:	**20 M€**

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1. Introduction

The two FET Flagship initiatives, the Graphene Flagship and the Human Brain Project (HBP), are large-scale initiatives in the European Research Area addressing grand scientific and technological (S&T) challenges, based on a unifying vision, a core project serving this vision, and mechanisms to align efforts funded from various sources with this core project toward this unifying vision[1]. In this context, FLAG-ERA, the 'Flagship ERA-NET', gathers National and Regional Funding Organisations (NRFOs) in Europe and beyond with the goal of supporting, together with the European Commission (EC), the FET Flagship initiatives. One of its main aims is to allow researchers to complement the current Flagship projects and to collaborate towards the achievement of their vision using existing or dedicated transnational, national and regional calls. In particular, FLAG-ERA aims at launching dedicated joint transnational calls (JTCs) allowing researchers from several countries to jointly contribute to the Flagship goals. The present JTC is the third such call, after the JTC 2015 and the JTC 2017.

Such JTCs combine the features of conventional ERA-NET calls with specific features designed to exploit the potential synergies offered by the Flagships. These specific features are as follows:

- The thematic scope of the call corresponds to topics where synergies are expected. For that purpose, this scope has been defined in partnership with Flagship representatives.
- Proposals can involve Flagship Core Project partners, who can request funding if they are eligible to do so. Discussions with further Flagship Core project partners are encouraged. Proposals include a description of the synergies expected in the framework of the proposed projects. Selected projects are expected to become Flagship Partnering Projects. The foreseen association to the Flagship is described in a standalone document that is submitted along with the project proposal itself and can be directly reused for the actual association if the project is selected.
- In addition, for the HBP part of the call, it is offered to forward this document to Flagship representatives in parallel to the evaluation 1st step so that they can provide feedback about potential synergies not already identified. This feedback can be taken into account when preparing the full proposal.

The call is divided into sub-calls corresponding to different topics (Graphene and HBP) and, within the Graphene topic, to different technology readiness levels (TRLs[2]). Indeed, for this topic, in order to accompany the Graphene Flagship evolution toward higher TRLs and to encourage the submission of proposals with a foreseen industrial or economic impact, a sub-call on applied research and innovation is organised in addition to one on basic research. These two sub-calls differ in term of participating countries and funding organisations, they are evaluated by different panels, and they use different weights on the 'excellence' and 'impact' evaluation criteria. Proposals targeting TRLs up to 4 at project end should be submitted under the sub-call on basic research and proposals targeting TRLs of 5 and above at project end should be submitted under the sub-call on applied research and

[1] http://ec.europa.eu/programmes/horizon2020/en/news/fet-flagship-model-implementation-and-governance-model-horizon-2020-short-overview-presentation, http://graphene-flagship.eu/project/partnering/Pages/Partnering-Mechanisms-under-Horizon-2020.aspx, https://www.humanbrainproject.eu/en/about/project-structure/partnering-projects/.

[2] http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

innovation. While some topic areas can be more relevant to one sub-call or the other, for all areas it is up to the applicants to decide under which sub-call they apply depending on the content of their proposal.

The NRFOs participating to the call and more specifically to each sub-call are listed in the next section. The JTC will be conducted simultaneously by these NRFOs and coordinated by the Joint Call Secretariat (JCS). The NRFO Contact Points (CPs) are provided in Annex II, and the contact information of the JCS is provided on the front page of the present Call Announcement. The descriptions of the scientific areas for this call are provided in Annex I. Only proposals falling into these areas will be considered.

2. Participating NRFOs and indicative budgets

The table below provides the list of NRFOs participating to the call, indicative budgets and anticipated number of fundable research groups. Note that the list of participating NRFOs depends on the sub-call.

			Graphene (k€)		HBP (k€)	
Country		Funding organisation	Basic research	Applied research and innovation	Basic and applied research	Anticipated nb of fundable research groups
BE	Belgium	FNRS	200		200	2-3
		FWO	350		350	2-3
BG	Bulgaria	BNSF	100			2-3
DE	Germany	DFG	2 000			10-12
EE	Estonia	ETAg	100		100	2
ES	Spain	AEI	700			5-7
		IDEPA	200			1-2
		ISCIII			500	3-4
FR	France	ANR	1 000		1 000	8-10
GR	Greece	GSRT		900	700	7-9
HU	Hungary	NKFIH	300		300	4-6
IL	Israel	InnovationAuth	500		500	3-5
IT	Italy	MIUR		300	300	4-6
LT	Lithuania	LMT	100		100	2-3
LV	Latvia	VIAA	300			2-3
NL	Netherlands	NWO			700	3
RO	Romania	UEFISCDI		250	250	3-4
SE	Sweden	VINNOVA		750		2-4
		VR	750			2-4
SI	Slovenia	MIZS	420		210	3
SK	Slovakia	SAS	120		120	2
TR	Turkey	TUBITAK	2 500			10-15

3. Timeline

The timeline below is indicative. The exact deadline for full proposals will be provided when notifying the accepted short proposals.

19 Nov 2018	Call announcement publication
10 Jan 2019	Information webinar
19 Feb 2019	Short proposal submission deadline
May 2019	Notification of accepted short proposals
July 2019	Full proposal submission deadline
Nov 2019	Notification of accepted full proposals
Dec 2019 - Mar 2020	Project start (duration up to 3 years)

4. Eligibility

The FLAG-ERA joint transnational call is a hybrid funding instrument. Proposals are submitted by international consortia with partners in multiple countries, and the proposal evaluation and selection are international. Funding is then provided by participating funding organisations directly to the selected consortium partners.

Each partner is directed by a principal investigator (PI), who interacts with its respective NRFO. One partner acts as the coordinator for the consortium and is the single point of contact with the FLAG-ERA JCS.

It is both necessary that the consortium is eligible for FLAG-ERA, and that all partners are eligible to be funded by their respective NRFOs.

4.1. Eligibility of the consortium

Consortia must be international. They must involve at least

- 3 partners requesting funding from 3 participating countries, or
- 2 partners requesting funding from 2 participating countries and a partner from another country securing its own funding as a Flagship Core Project partner.

In both cases, partners requesting funding may be Flagship Core Project members.

In any case, the consortium coordinator must be a partner requesting funding (and be eligible for funding) from an organisation participating in the call.

Consortia must be balanced. The maximum requested funding allowed per country in a proposal is 60% of the total requested funding of the proposal, except if only partners from 2 countries apply for funding, in which case this figure is raised to 75%.

Research groups who are not eligible to receive funding by an organisation participating in the call but are willing to collaborate and contribute to the proposed project may be part of a consortium if they are able to secure their own funding. Third-party funding is not considered for the application of the above-mentioned balance rule.

4.2.Eligibility of partners

The eligibility criteria for partners are specific to their respective NRFO. In order not to jeopardize the whole consortium, each partner in the consortium should ensure that no doubts exist about the eligibility of their institution (university, academic institutions, industry), the eligibility of their PI (permanent staff, position secured for the duration of the project, etc.), and their eligible costs. It is important to note that some NRFOs require that eligibility of partners is checked with them prior to applying. It is also important to be aware that **some NRFOs request the submission of an application at the national level in parallel to the transnational submission**, and that **failing to submit the national application makes the partner ineligible**. It is the responsibility of the coordinator to ensure that all necessary checks have been done before submitting.

Details as well as contact points are provided in Annex II.

4.3.Duration

Projects may be funded for a period of up to three years and according to individual funding organisation regulations (see Annex II).

5. Application procedure

Before submitting, ensure the proposal is valid, and in particular that:

- the research is in line with the topics of the call,
- the consortium meets the eligibility criteria,
- each partner meets the eligibility criteria, and
- all partners who must contact their NRFO prior to submission have done so.

5.1.Submission of pre-proposals (1st step)

A joint pre-proposal document (maximum 10 pages, in English, in PDF format) shall be prepared by the consortium partners and submitted by the coordinator. Additionally, a Flagship partnership form shall also be prepared and submitted. These two documents shall follow the templates provided on the call web page. They shall be submitted in electronic format no later than the deadline provided on the front page of this call announcement, via the electronic submission system (http://submission.flagera.eu/).

It is recommended that a preliminary proposal be submitted several days before the deadline to guarantee against unforeseen issues. Submitted proposals can be updated until the deadline.

Partners whose funding organisation requires submitting forms alongside the consortium application must do so at this point.

The coordinator and all partners must be in a position to diligently answer e-mail queries after the submission. If a partner's PI is not available, he or she must be represented by a collaborator of the same organisation.

5.2.Submission of full proposals (2nd step)

If selected after the first step, applicants will be invited to submit a full proposal. At least 6 weeks will be granted for preparing the full proposal. The submission deadline will be given in the invitation to submit the full proposal. The procedure is similar to the submission of the short proposal, except for the following points:

- The maximum length of full proposals is 30 pages (cf. full proposal template).
- The full proposal is expected to be consistent with the pre-proposal. Any change to the plans described in the pre-proposal should be explained and justified. If the changes involve a change in consortium composition, it is strongly advised to contact the national contact points in the concerned countries as well as the Joint Call Secretariat prior to submission to check for any eligibility issue.

The Flagship partnership form can be updated at this stage.

6. Evaluation and selection

The evaluation and selection processes are independent of the Flagship Core Projects.

Proposals are assessed and ranked by independent international Scientific Evaluation Panels (SEPs). There are three different SEPs, one for each sub-call for the Graphene topic ('basic research' and 'applied research and innovation') and one for the HBP topic ('basic and applied research').

6.1.Evaluation criteria

The evaluation criteria are the following:

1. **Excellence:** Scientific and/or technological quality (to the extent that it is relevant to the call topics)
   a. Soundness of the concept, and quality and pertinence of the objectives
   b. Quality and effectiveness of the methodology
   c. Expected progress beyond the state-of-the-art
   d. Originality and novelty of ideas
2. **Implementation:** Quality and efficiency of the implementation and management
   a. Quality of the work plan, appropriateness of allocation and justification of requested resources (staff, equipment…)
   b. Appropriateness of the management structure and procedures
   c. Quality and relevant experience of individual participants
   d. Quality and added value of the consortium (complementarity, balance, etc.)
   e. Identification of risks and mitigation plan
3. **Impact:** Potential impact through the development, dissemination and exploitation of results
   a. Potential industrial and economic impact at the European and/or international level
   b. Societal and scientific importance
   c. Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property

Each criterion is scored between 0 and 5 (fractional point scores may be given). The scores indicate the following with respect to the criterion under examination:

0. The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information (unless the result of an 'obvious clerical error').
1. **Poor –** The criterion is inadequately addressed or there are serious inherent weaknesses.
2. **Fair –** The proposal broadly addresses the criterion, but there are significant weaknesses.
3. **Good –** The proposal addresses the criterion well, but a number of shortcomings are present.
4. **Very good –** The proposal addresses the criterion very well, but with a small number of shortcomings.
5. **Excellent.** The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Proposals that do not reach a score of 3 in each of the above criterion are rejected.

The total score for a proposal is weighted average of the scores for the three individual criteria. The weights are as follows:

	Graphene		HBP
	Basic research	Applied research and innovation	Basic and applied research
Excellence	50%	30%	40%
Implementation	30%	30%	30%
Impact	20%	40%	30%

The total score is the basis for the ranking of the proposals.

6.2.Evaluation and selection of pre-proposals

Proposals are evaluated by the SEPs. The assessment of each proposal is detailed in a consensus report, which is made available to the applicants.

On the basis of the ranking, the top ranked proposals, representing a cumulated amount of requested funding of about three times the total available budget for the call, are selected at this stage.

6.3.Evaluation and selection of full proposals

Proposals are assessed by the SEPs with the help of external reviewers. The assessment of each proposal is detailed in a consensus report, which is made available to the applicants.

On the basis of the ranking and of available funding, a board representing the participating funding organisations (Call Steering Committee, CSC) will prepare a list of projects recommended for funding.

7. Association to the Flagship

Projects recommended for funding are invited to proceed with the formal association to the Flagship, using the Flagship standard association procedure (cf. links provided in the introduction). Any issue at this stage is treated through classical project risk management.

For the HBP topic, in parallel to the evaluation 1st step, except for the applicants who would opt out of this possibility, the Flagship partnership forms are sent to Flagship representatives. The list of these representatives is provided on the call page. They are bound to confidentiality but can consult Flagship members mentioned in the partnership form. They provide feedback about potential areas of further collaboration and any other relevant comment on the proposed partnership. This information is provided to the joint call secretariat, which forwards it to the applicants along with the results of the evaluation and selection 1st step. Applicants invited to submit a full proposal can take advantage of this information to improve their proposal. The information is not forwarded to the SEP and it is up to the applicants to exploit it.

8. Management of projects

8.1. Setting up the consortium

If the proposal is recommended for funding, each partner submits an administrative application to the chosen funding organisation to apply for its funding grant or contract. The subsequent negotiation phase between the partners and the funding organisations follows their established procedures and, if successful, results in a grant agreement between the two parties.

All partners of a consortium should agree on a common start date, which is communicated to the FLAG-ERA JCS, and request funding in agreement with this common start date, to ensure that the collaborative research can be conducted as planned.

The administrative and financial management of funding is overseen by the respective funding organisations, according to their rules and guidelines.

At the latest three months after a project's start, a consortium agreement has to be signed by all partners and sent to the FLAG-ERA JCS. Some funding organisations may require that the consortium agreement is signed before the grant agreement can be finalised or before any payment.

8.2. Reporting and publications

The coordinators of funded projects have to submit a progress report on each 12-month period of the project. The report includes a Data Management Plan (DMP). The reports must be sent to the FLAG-ERA JCS within two months after the end of each period. In addition, the consortia must present the status of their projects at yearly events (expectedly three times for three-year projects). These events will be, as much as possible, coupled with Flagship events. The related costs are eligible and it is advised to include them in the project budget. Note that the participation in the Flagship might involve other meetings, and that the related costs are also eligible.

Some funding organisations require separate reports for individual project partners. This will be specified in their grant agreement.

Any publications resulting from FLAG-ERA funded projects must acknowledge FLAG-ERA, and an electronic copy must be sent to the FLAG-ERA JCS. Granting open access to publications and data is encouraged (related costs are eligible, in the framework of the respective funding organisation regulations).

ANNEX I – Topic descriptions

The FLAG-ERA JTC 2019 comprises two topics, one for each Flagship. Each topic covers a specific list of research areas listed below and described in the following pages. The Graphene part of the call is sub-divided into two sub-calls, one for basic research and one for applied research and innovation. All Graphene topic areas are open to both sub-call, and it is up to the applicants to decide under which sub-call they apply, taking into account the lists of participating countries (cf. section 2) and the weights on the evaluation criteria (cf. section 6). Relevant parts of the Flagship and contact points for each area are provided on the call web page.

Graphene JTC areas

1. Synthesis and characterization of layered materials beyond graphene
2. Graphene and related materials (GRMs) for Quantum Technologies
3. Optimized GRM-based tunnel barriers for efficient spin injection and detection into graphene under operational conditions
4. Spin torque and layered-materials-based memory building block
5. Synthesis of monolayers of non-layered compounds
6. Bacterial degradation of GRMs
7. Osteoinductivity and immunisation capacity of GRMs
8. Soft graphene-based materials for tissue engineering
9. GRM-based large-area light emitters and arrays
10. Low temperature growth of layered semiconductors for flexible applications
11. Nanofluidics based on GRMs
12. CVD growth of graphene on insulators
13. Sensors from GRMs and their heterostructures
14. Passive components for radio frequency electronics based on GRMs
15. Infrared photodetectors based on GRMs and their heterostructures
16. LIDAR based on GRMs for autonomous vehicles
17. Moore's law continued through GRMs
18. GRM-based tandem solar modules
19. Graphene-based cathode materials for Li-ion batteries
20. Re-usable templates for graphene production

HBP JTC areas

1. Development and maturation of cognitive processes and multisensory integration at micro- and macro-scales
2. The role of neurotransmitter systems in human cognition
3. Subcortical structures: from cognition to action
4. The neuroscience of decision-making
5. Studies on biological deep learning and combined declarative and working memory
6. Disease modelling and simulation
7. Single cell RNA sequencing of human and mouse brain
8. Predictive neuroinformatics: A trans-species approach
9. Testing neuronal models at multiple scales
10. Automated construction and analysis of models of neurons and networks
11. Reconstruction of neuronal morphology from microscopic image data
12. Neuron data format standardization

Graphene JTC areas

1. Synthesis and characterization of layered materials beyond graphene

New layered semiconducting and metallic crystals, or layered bulk compounds that can be exfoliated into monolayers, have the potential to accelerate optoelectronics and electronics developments aiming at post-CMOS technologies. There is a need to broaden the range of such materials available for device prototyping and industries in Europe and to build up European capabilities in MBE, CVD and/or ALD growth of these materials. Progress can be delivered by combining growth/synthesis and characterisation expertise and facilities, and proposals should plan both growth/synthesis activities and suitable structural, optical, scanning microscopy of the newly produced layered materials, with access to the necessary facilities. Developments should be benchmarked against same materials already produced using similar methods worldwide.

Keywords: Molecular beam epitaxy (MBE), Chemical vapour deposition (CVD), Atomic layer deposition (ALD)

2. Graphene and related materials (GRMs) for Quantum Technologies

Functionalities offered by GRMs and their heterostructures can be exploited to extend the materials platform for electron- and photon-based Quantum Technologies (QT). There are also possibilities to develop better performing devices for quantum information processing such as spin, charge or flux qubits, single-photon emitters for cryptography applications, and sensors and detectors with performance enhanced by quantum entanglement. New device concepts for QT enabled by GRMs can also be proposed. Proposals should demonstrate the ability to fabricate and test the new systems, taking the demonstrators to the suitable level of device prototypes.

Keywords: Quantum technologies

3. Optimized GRM-based tunnel barriers for efficient spin injection and detection into graphene under operational conditions

For the implementation of graphene spintronics devices it is highly desirable to achieve spin injection/detection efficiencies approaching 100%, using a technology which is compatible with GRMs which hosts the spin transport. Tunnel barriers of hexagonal boron nitride (hBN) have shown a significant, but not yet understood, increase of injection/detection efficiencies. The role of the number of layers as well as layer orientation is currently unknown. Thorough understanding of the relevant physics and technology is now needed to make progress for GRM-based spintronic devices, in particular addressing the role of elevated voltage and temperature bias. The latter is believed to significantly affect the spin propagation, especially in the presence of hot carriers.

Keywords: Spintronics, spin injection, spin detection

4. Spin torque and layered-materials-based memory building block

Magnetic random access memory (MRAM) is an emerging non-volatile memory (NVM) whose memory cell comprises a magnetic tunnel junction (MTJ). It has exceptional characteristics, but needs

to keep improving performances to become a leading technology. By coating magnetic materials with GRMs, it has been predicted and demonstrated that a considerable improvement of the perpendicular magneto anisotropy (PMA) can be achieved, as well as a great enhancement of writing and reading energies. These parameters are key figures of merit for MRAM technology. By leveraging paths to integrate these new materials in MTJ following industrial processes, a major impact on such spin-torque-based technologies can be expected. Proposals should target the integration of layered materials in spin-torque-based MRAM devices in a fab environment and the development of key-in-hand solutions enabling further large-scale commercial production of layered-materials-based spintronic devices.

Keywords: Spintronics, spin torque technology, Magnetic random access memory (MRAM)

5. Synthesis of monolayers of non-layered compounds

Layered Materials (LMs) can be superconductors, insulators, metals or magnetic. Non-layered materials also exhibit a broad range of functionalities, such as ferroelectricity, ferromagnetism, superconductivity, etc. New approaches have appeared that allow large-scale synthesis of monolayers of non-layered compounds. Large-scale synthesis strategies should be developed for monolayers of non-layered materials that can be combined in multifunctional heterostructures with conventional layered materials. Integration of conventional LMs with well-established materials in current technological applications based on non-layered materials exhibiting technologically relevant ferromagnetism, ferroelectricity, high Tc superconductivity, etc., can have applications in fields such as renewable energies and information technologies. Proposals should aim at enlarging the existing LM platform with the inclusion of non-layered materials exhibiting functionalities such as ferroelectricity, ferromagnetism, superconductivity, etc. Improvements are expected in the number of monolayers of the non-layered materials synthesized and in the integration of such layers with LMs in multifunctional heterostructures.

Keywords: Synthesis, non-layered materials, hetero-structures

6. Bacterial degradation of GRMs

One fundamental aspect of GRMs ecotoxicology concerns the assessment of possible ways for the degradation of GRMs released into the environment. Bacterial communities play a major role in biogeochemical cycles. Their metabolic versatility allows them to use organic materials dispersed in the environment as sources of reduced carbon thanks to extracellular degradation processes. Furthermore, microbial communities are known to colonize contaminated sites and have the ability to metabolize recalcitrant xenobiotics. The diversity, versatility and plasticity of bacteria make them the best candidates among all living organisms to study the degradation of GRMs and GRM-based composites and devices. Best subjects are bacteria of graphite ore fields and/or with intense extracellular oxidative activities. Proposals should investigate the capacity of bacterial communities to degrade GRMs and composites or polymers and devices that contain such materials.

Keywords: Bacteria, GRM-based composites, degradation, remediation

7. Osteoinductivity and immunisation capacity of GRMs

Nanosystem-based strategies in bone tissue engineering have seen recent progress on several fronts. GRMs, due to their unique structure and mechanical proprieties, facilitate the osteogenic differentiation of mesenchymal stem cell (MSC) and enhance bone regeneration. Furthermore, depending on their physicochemical properties, GRMs can be selected for exerting distinct molecular effects on the immune system. The immune system plays a key role in osteoblast differentiation and consequently on bone formation. In osteoimmunology, GRMs have emerged as new systems in clinical strategies for bone formation and regeneration. There is a need to identify the most suitable GRM-based composites able to boost bone formation and osteogenesis.

Keywords: Immune cells, GRM-based composites, bone formation, mesenchymal stem cells

8. Soft graphene-based materials for tissue engineering

Mimicking natural conditions of tissue growth is a major challenge. A new approach can be based on the design of soft graphene-based functional materials. A chemical design of the hybrid structure must control the final physicochemical properties, affording special sizes and shapes for localization of cells. Graphene is known to promote cell adhesion and can enhance viscoelastic characteristics, which have a large influence in cellular behaviour and differentiation. Moreover, scalable designs may allow the preparation of smart materials, with self-healing ability and control delivery of biomolecules, to enhance the innate reparative capacity of cells.

Keywords: Tissue engineering, viscoelastic properties, artificial organs, controlled delivery

9. GRM-based large-area light emitters and arrays

Standard OLED technology offers a good solution for flexible light sources and displays, but it suffers from rather low brightness. Solid-state emitters are considered as alternative to surpass this problem, but are not adequate for flexible applications. New GRMs with efficient light emission at all colours of the visible spectrum and high brightness would also be suitable for flexible and transparent substrates and could lead to substantial innovations. The goal is to develop a novel competitive LED technology with sufficient efficiency, brightness, and dimensions for (micro-) display and lighting applications. Priorities include large-area devices and large-area/wafer-scale growth of GRMs with efficient light emission of the visible spectrum, preferably including the short-wave infrared, and high brightness and fabrication of pixel arrays, which will also be suitable for flexible and transparent substrates.

Keywords: Heterostructures, electrically driven light emitters, displays, lighting

10. Low temperature growth of layered semiconductors for flexible applications

Layered semiconductors are promising candidates for logic and optoelectronic functions in future flexible electronics applications, due to their flexibility, transparency and, in many cases, direct bandgap. The feasibility and prospects of these materials in commercial products would benefit significantly from a technology allowing their direct deposition on polymer sheets, where the thermal budget is limited to below 350ºC for polyimide and below 200ºC for most other polymers. The goal is

to develop a scalable process for the low-temperature deposition of stable layered semiconductors and include characterization of their electrical and optical properties.

Keywords: Transition metal dichalcogenides (TMDs), deposition, low-temperature

11. Nanofluidics based on GRMs

GRMs can be used to develop structures or laminates for nanofluidics with a significant performance improvement over current technologies, or offer new opportunities only made possible by layered materials. Proposals are expected to outline a route towards higher technology readiness levels and, ultimately, new industrial products. They should combine experimental and theoretical efforts (mesoscale modelling, molecular dynamics simulations), based on expertise in layered materials fabrication, characterisation and modelling of their relevant structural and nanofluidic properties.

Keywords: Nanofluidics, nanochannels; ionic transport

12. CVD growth of graphene on insulators

Large area CVD growth of graphene has made significant progress over the last decade. However, the difficulties in transferring the material to target substrates hamper its use in some applications. Growth techniques enabling synthesis of graphene directly on a dielectric substrate should be developed. Direct large area CVD growth of graphene on insulators glass, oxides (such as TiO_2, SiO_2), ceramics, etc., would open a range of application that, if achieved at low temperature compatible with relevant industrial processes, would widen the application scope of graphene in functional architectures, home automation, photovoltaics, functional ceramics, etc.

Keywords: CVD growth, graphene, insulators, low temperature

13. Sensors from GRMs and their heterostructures

GRMs have many advantages for sensors. The sensitivity to mechanical signals is enhanced when suspended, lower heat capacitance leads to higher temperature changes when radiation is absorbed, and electrical properties are more affected by surface effects and less by substrate influences. GRMs can thus be used to develop sensors such as microphones, bolometers, Hall sensors, photonic sensors, gas sensors, biosensors and atomic filters.

Keywords: Suspended GRMs, freestanding GRMs, sensors

14. Electronic radio-frequency devices and systems based on GRMs

While field effect transistors based on GRMs have been intensively studied, GRM-based electronic radio-frequency components such as antennas, capacitors, inductors, resonators, diodes, varactors, etc., are less well explored. This gap should be closed and concepts for realizing RF devices and systems should be developed. Examples of systems include antenna arrays, power detectors, band-pass filters, phase shifters and rectifiers. Targeted applications include the Internet-of-Things, mobile communication, sensors and energy harvesting.

Keywords: RF electronics, RF engineering, IoT

15. Infrared photodetectors based on GRMs and their heterostructures

Existing technologies for infrared photodetection are either high cost, requiring cooling, or have poor resolution. This topic targets the development of photodetectors for the wavelength range between 2 and 20 µm. Essential requirements include detectors based on large-area materials (e.g. CVD grown), pixel size <20 µm, and improved detectivity and speed compared to Si bolometers. The goal is to translate the concept of semi-conductor quantum-well photodetectors to GRM heterostructures, but exploiting the specific advantages such as absence of lattice-matching requirements.

Keywords: Photodetection, Infrared

16. LIDAR based on GRMs for autonomous vehicles

LIDAR (LIght Detection And Ranging) is a light range finder system for real time accurate detection of in depth images. The main application is obstacle warning for vehicles but also for remote control of unmanned vehicles, smart buildings/smart cities, drones and self-driving cars. Automotive, industrial robots and drones are the potential largest market and the LIDAR can be used either for safety (monitoring drowsiness and distraction), in field monitoring and/or for self-driving. High index contrast photonic integrated circuits including graphene for tuneable phase shifting is the intended technology for the realization of the LIDAR transmitter scanning head. The goal is to develop a compact, energy-efficient scanning head with the potential for large-scale, low-cost manufacturing.

Keywords: Silicon photonics, graphene photonics, LIDAR

17. Moore's law continued through GRMs

In classical semiconductor materials, ultimately scaled channels below 10 nm will lead to a drop in the carrier mobility due to increased surface roughness scattering. One possible disruptive way out of this predicament is the use of layered materials such as transition metal dichalcogenides (TMDs), with good mobility even in the single-layer limit. This will allow scaling of the device size beyond the limits of Moore's law for 3D materials. At flake level, interesting devices have been demonstrated. The objective is to bring growth and integration schemes closer to applications. For that purpose, short channel devices should be demonstrated.

Keywords: Semiconductors, transition metal dichalcogenides (TMDs), scaling, Moore's law

18. GRM-based tandem solar modules

Fast and reliable in-situ, single-step, techniques for rapid and inexpensive fabrication of GRMs-based solar modules are needed for their industrialization. A critical requirement is that the fabrication processes must be compatible with the low-temperature plastic materials considered as substrates in flexible solar modules or the bottom inorganic subcells. It is essential to develop non-contact processes, in-situ, that do not rely on the use of chemicals or high temperatures and can be compatible with sheet-to-sheet or roll-to-roll manufacturing of CIGS/perovskite solar modules. Areas of special interest are: (i) In-situ techniques that are able to a) pattern and/or shape in real-time and/or b) modify the chemistry of GRM device components in real-time, without physical contact between components and processing tools; (ii) Post fabrication in-situ and non-contact techniques that are able to process, non-destructively, integrated GRM based tandem solar modules.

Demonstrators should target the in-situ processing of mono- or multilayer GRM components or post-fabrication processing of GRM-based solar modules.

Keywords: In-situ processes, flexible electronics, large-area optoelectronic devices, Roll to roll/sheet-to-sheet processing.

19. Graphene-based cathode materials for Li-ion batteries

The integration of highly conductive matrices in Li-ion battery cathode formulations will create new opportunities in terms of high power deploying and fast charging. In order to combine high-capacity with improved kinetic properties, research around S and Li-rich intercalation cathode materials as well as cathode material-graphene engineering is needed. In particular, power densities and energy densities exceeding commercial high-end Li-ion batteries values (200 $Wh.kg^{-1}$ and 300 $W.kg^{-1}$, respectively) are targeted as minimum requirements.

Keywords: Li-ion batteries, high-power batteries, graphene, Lithium intercalation, cathode

20. Re-usable templates for graphene production

Chemical vapour deposition is one of the most promising methods for graphene production. The resulting quality (grain size, defects, number of layers) has a strong dependence on the “template” used. The template is defined here as the metal foil (for roll to roll) or catalyst stack plus wafer (for wafer-scale production). A lot of effort/expense is put into creating the template, such as single crystal metallic foils or single orientation thin films on substrates. Often the template is destroyed during graphene transfer. Therefore, methods for preparing, cleaning and reusing these substrates are needed for graphene production to be truly cost effective. Proposals are sought to demonstrate re-usable templates for graphene production (i.e. same quality – defects, grain size number of layers obtained/transferred over >5 uses) and means of producing and regenerating these templates.

Keywords: Catalyst, Chemical Vapour Deposition

HBP JTC areas

Projects should contribute to the aims of the HBP and address ambitious research questions in the field of brain research including medical research, brain inspired technologies, robotics & computing and/or contribute to technological development. The proposed activities should be based on the latest scientific knowledge, and include innovative concepts that bring the field closer to the solution of a concrete and important problem in an interdisciplinary research approach. **Objectives should be realistic and measurable, and reproducibility should be ensured.** Proposed activities should demonstrate their potential to benefit from and/or contribute to the HBP ICT platforms (Subprojects 5-10). Ideally they cut across existing HBP Subprojects, including neuroscientific and platform Subprojects and/or the 'Ethics and Society' Subproject.

1. Development and maturation of cognitive processes and multisensory integration at micro- and macro-scales

The fields of Neuroscience, Cognitive Neuroscience, AI and Neuroengineering are making strong and partially successful efforts to understand the microcircuit and meso-scale levels of cognitive architectures in the brain. Insights are accumulating in the roles played by e.g. interneurons, principal neurons, and dendrites in cognition, and mesoscale imaging tells us which larger brain systems are involved in memory, decision-making, planning, sensory processing and consciousness. Much less is known about how these small- and large-scale structures come to be organized and properly wired during development and how they are affected by experience-dependent plasticity during postnatal life.

Cognition and multisensory integration are considered high-level processes, depending on millions of neurons, often spread out across multiple, connected brain areas. The novelty of this topic lies in studying how these high-level processes arise out of the mostly low-level growth and synaptic processes identified from cellular and molecular studies on brain development. We have very little understanding on how the brain "bootstraps" this low-level functionality into higher cognitive functions such as full-blown scene perception and how the different sensory modalities are integrated in a growing body.

Proposals should address the specific involvement of neuronal subtypes (interneurons, excitatory cells) in cognitive and multisensory integration processes, circuit dynamics, role of experience on the development of cognition and multisensory integration including neuronal models of these processes across development. Projects can include translational studies for autism, schizophrenia and other neurodevelopmental diseases addressing the development of cognition and/or multisensory integration.

Keywords: Cognition, multisensory integration, neurodevelopment, experience-dependent plasticity, brain architectures, neuronal modelling, multiscale systems

2. The role of neurotransmitter systems in human cognition

Neurotransmitters such as dopamine, noradrenaline, serotonin, acetylcholine, glutamate, GABA and opioids play a crucial role in all aspects of cognition. Many psychiatric and neuropsychological disorders, including depression, addiction, attention deficit hyperactivity disorder (ADHD), obsessive–compulsive disorder (OCD) and Parkinson's disease, are characterized by dysfunctioning

neurotransmitter systems, yet their precise roles are not well understood. With an increasing number of neuroscience methods available to measure or manipulate neurotransmitter functioning in humans with increasing specificity, it becomes possible to build the bridge between lower-level neuroscience research in animals and system-level neuroscience research in humans. Such research on neurotransmitter systems in humans yields important knowledge for the emerging field of computational psychiatry aiming at improved disease classification and treatment selection.

This topic goes beyond the commonly employed clinical, genetic, resting state and/or structural imaging methods and invites proposals to integrate the data generated using these techniques with cognitive computational approaches to understand the role of neurotransmitters in cognition and brain disease. It is expected that linking molecules to brain activity and cognitive function has the potential to unify molecular system-level and cognitive neuroscience.

Keywords: Neurotransmitters, human cognition, pharmacology, psychiatry

3. Subcortical structures: from cognition to action

Crosstalk between subcortical and cortical structures strongly influences cognitive processes and their translation into action. To develop brain simulations for the study of human behaviour, mental illness, and robots that can act as autonomous agents that interact with humans, a strong integration of subcortical brain function is necessary.

This topic concerns research projects aiming at the molecular and cellular characterization of subcortical structures such as the thalamus, basal ganglia, tectum, amygdala, hypothalamus and brain stem. The proposals should consider subcortical connectivity and the functional properties of these subcortical structures during behaviour in animal models and/or humans, as well as their functional and/or anatomical interaction with the cortex. This knowledge should serve as the basis for improving models and simulations of the healthy and diseased brain.

Keywords: Thalamus, basal ganglia, tectum, amygdala, hypothalamus and brain stem, cortical loop

4. The neuroscience of decision-making

Each day our brain makes thousands of decisions. We are aware of few of them. Decision-making processes are central to behavioural, cognitive and psychological neurosciences. Understanding and modelling the basic neural processes and computations that underlie decision-making is crucial to understand how the healthy brain functions and how disorders (psychiatric, neurologic disease, drug abuse) affect the underlying processes. This area is also of great importance for the development of performant artificial systems (i.e. in robotics).

This topic includes different aspects of decision-making, from the investigation of brain and neural mechanisms using experimental and modelling approaches, to the application of decision-making knowledge to artificial systems such as neuro-robotics. The role of neurotransmitter systems, neuronal subtypes and cortical and subcortical circuits involved in decision-making fall into the scope of the present topic.

Keywords: Decision-making, neuro-robotics, modelling, psychiatry, neurotransmission, neural processes and computation

5. Studies on biological deep learning and combined declarative and working memory

Deep learning networks have turned out to be very efficacious in addressing complex problems such as playing games (e.g. Go), image classification and object recognition. The next challenge is to study how biological brains implement these high-level functions in actual living neural networks. The present research area aims to address whether less realistic properties of deep learning algorithms could be replaced by more biological properties, i.e. realistic bioelectric behaviour of neurons, and how the functionality of networks could be further augmented using knowledge about the brain.

One particular challenge is to combine multi-layered feed-forward networks (styled roughly after the neocortex) with systems for declarative and/or working memory (resembling the hippocampal formation, frontal cortex and connected structures). This way, high-level information from deep learning can be stored temporarily, contextualized and semanticized. Thus, the model can assign meaning to the outputs from a deep-learning network. The aim would be to gather empirical data from humans and rodents on such combined models, and test them in multi-scale models and neuromorphic computing devices.

Keywords: Deep learning, object recognition, biological brain, biological plausibility, declarative memory, working memory

6. Disease modelling and simulation

The objective of this call topic is to promote clinical proof-of-concept studies and research projects related to the modelling and simulation of different brain diseases. Strong interaction with the Medical Informatics and Brain Simulation Platforms is highly encouraged. Through these platforms, projects will have access to data and bioinformatics methods (machine learning, data intensive network analysis, pathways analysis in large volume of data) to gain new clinical insights, derive mechanisms of disease causation, identify relevant brain networks across healthy subjects and patients using imaging data, and study mechanisms of action of known therapeutic agents. Possible research themes include mechanisms of disease causation, mechanisms of action of known therapeutic agents, screening of drug candidates, and developing both hypothesis and data driven models of disease directly constrained by experimental data in human and animals.

Keywords: Disease modelling, disease classification, network analysis, brain disease, Alzheimer's disease, epilepsy

7. Single cell RNA sequencing of human and mouse brain

Single cell RNA sequencing allows categorizing brain cells based upon gene expression. In combination with GWAS data from human brain disease, this allows to predict which cell types are involved in human brain disease processes. These cells can then be manipulated (e.g. with chemogenetics) or targeted to create iPSC-models and studied. This provides a strong translational tool to unravel human brain diseases at a functional level. Knowledge of which GWAS genes are expressed in which cells is also helpful to increase the power of neuroimaging genetics since only a limited amount of genetic variants would need to be tested for explaining variance in brain response. Single-cell RNA sequencing techniques can be used to unravel human brain diseases by investigating single cells from well-characterized affected and unaffected human brains and mouse models of

brain disorders. Further aspects of interest include stratification of scRNA findings using large-scale GWAS data and validation of the underlying mechanisms using animal and cellular models.

Keywords: Single-cell RNA sequencing (scRNA-seq), genome-wide association study (GWAS), induced pluripotent stem cell (iPSC), chemogenetics, bioinformatics

8. Predictive neuroinformatics: A trans-species approach

The principal goal of the HBP is to build the infrastructure necessary for analysing, modelling and ultimately simulating the human brain. A key challenge is to obtain appropriate parameter values for this human model. There is a fundamental gap in human data that can only be filled by data generated in other animal species. Research projects on this topic are expected to develop, adapt and implement the appropriate machine learning techniques to support trans-species prediction; to use new experimental approaches to acquire the data necessary to support trans-species prediction approaches; or design and build the infrastructure to support trans-species prediction in a robust and sustainable way.

The expected outcome would be the prediction of human brain properties based on the analysis of structural, behavioural, genetic and cognitive convergences among species.

Keywords: Machine learning, translational neurosciences

9. Testing neuronal models at multiple scales

Neuronal models aim at identifying a set of cellular properties (morphology, conductivity, connectivity) and computing them to predict the activity of neurons relevant to brain function. A great diversity of models has been developed at multiple scales in space, time and complexity, and span from large brain regions to the subcellular level. In order to test these models, their predicted responses must be confirmed by using suitable experimental tools for neural stimulation and recording at the relevant scales, including field stimulation electrodes and multi electrode arrays (both implanted and external), transcranial magnetic stimulation and functional magnetic resonance imaging, and photostimulation and activity recording using light (e.g. optogenetics). Research projects on this topic are expected to define a set of tools to test, compare, improve and validate neuronal models at different scales to be used by the community.

The following questions are expected to be addressed using experimental tools for neurostimulation that test, compare, improve and validate neuronal models at multiple scales, from brain regions to dendritic spine level: Can neuronal models achieve better predictive accuracy by embedding realistic structural and electric information (obtained from high-resolution microscopy and electrophysiology experiments)? How do neuronal models perform at different spatiotemporal scales? Can their complexity and use of computational resources be optimised? What are the advantages of closed-loop stimulation?

Keywords: Neuronal model validation, electric, magnetic, optic recording and stimulation

10. Automated construction and analysis of models of neurons and networks

Research projects on this topic should develop methods for the automated construction and revision of models of the dynamics of neurons and networks. The methods should take as input both data as well as existing domain knowledge (including existing neuronal models from model databases). The search through the space of model structures should be combined with multi-criteria optimization to obtain models that fit the data and satisfy additional on-demand criteria.

Keywords: Automated modelling, dynamic systems, differential equations, neuronal models, model database

11. Reconstruction of neuronal morphology from microscopic image data

Characterizing the 3D morphology of individual neurons and axons from different nervous (sub)systems is fundamentally important for elucidating the relationship between brain structure and function. Advanced microscopes allow high-resolution imaging of neurons in vitro as well as in vivo. Yet the systematic characterization of even simple brain circuits at the level of their individual neurons is still limited by the lack of robust computer algorithms for fast and accurate reconstruction of neurons from the image data. This topic concerns research projects proposing the development of new computational methods and software tools capable of reconstructing neuronal morphology based on microscopic data from different animal species, brain locations, neuronal tracing, histological and/or imaging protocols.

Keywords: Neuron reconstruction, microscopy, image analysis, brain connectivity

12. Neuron data format standardization

The way neurons (data) are mapped on memory has an impressive impact on performance when simulations are run in a supercomputer. This is particularly true for applications such as the simulation of the human brain, where the data, which come from the discretization of the neurons, presents a non-structured layout. Using a standard format, the scientists could advance much faster in their research, but it is important to spend the necessary time to establish the desired standard. This topic concerns research projects proposing and developing unified data formats for neuronal simulation.

Keywords: Data layout, standard, memory, performance, fast research

ANNEX II – National Requirements

BE – Belgium – FNRS

Country/Region	Belgium, French-speaking Community
Funding organisation	Fund for Scientific Research (FNRS)
National contact person	Florence Quist, +32 2 504 9351, florence.quist@frs-fnrs.be Joël Groeneveld, +32 2 504 9270, joel.groeneveld@frs-fnrs.be
Funding commitment	€ 200.000 per Flagship (€ 400.000 in total)
Anticipated number of fundable research groups	2 (in total)
Eligibility of project duration	The maximum amount of requested funding per project is € 200.000 for a total period of three years. If the project involves the recruitment of a PhD student, the project duration of the F.R.S.-FNRS sub-project could be up to four years (cf. PINT-MULTI regulations).
Maximum funding per awarded project / partner	The maximum amount of requested funding per project is € 200.000.
Eligibility of a partner as a beneficiary institution	All eligibility rules and criteria can be found in the PINT-MULTI regulations.
Eligibility of costs, types and their caps	All eligibility rules and criteria can be found in the PINT-MULTI regulations.
Submission of the pre-proposal at the national level	Applicants must provide basic administrative data by submitting an administrative application on SEMAPHORE for the same deadline as the consortium application is submitted. Please select the "PINT-MULTI" funding instrument when creating the administrative application. Proposals invited to the second stage will be able to complete the pre-proposal form and provide information for the full proposal upon validation by the F.R.S.-FNRS.
Submission of the full proposal at the national level	Applicants must provide basic administrative data by submitting an administrative application on SEMAPHORE for the same deadline as the consortium application is submitted. Please select the "PINT-MULTI" funding instrument when creating the administrative application. Proposals invited to the second stage will be able to complete the pre-proposal form and provide information for the full proposal upon validation by the F.R.S.-FNRS.
Submission of financial and scientific reports at the national level	Financial reporting: yearly by the finance department of the institution; scientific reporting: the joint FLAG-ERA reports replace the reporting for FNRS.
Information available at	http://www.ncp.fnrs.be/index.php/appels/era-nets
OTHER	Please note that FNRS does not allow multiple funding; the principal investigator should clearly state how the proposed project differs from other granted projects.

BE – Belgium – FWO

Country/Region	Belgium
Funding organisation	Fonds Wetenschappelijk Onderzoek – Vlaanderen (FWO)
National contact person	Dr Alain Deleener (Strategic Basic Research) Science Policy Advisor Strategic Research Programmes Tel. +32 2 550 15 95 Toon Monbaliu (Fundamental research) Advisor Research Affairs Tel. +32 2 550 15 70 E-mail: eranet@fwo.be
Funding commitment	700.000 €
Anticipated number of fundable research groups	2-3
Eligibility of project duration	Up to 36 months
Maximum funding per awarded project / partner	350.000 € **(overhead included)**
Eligibility of a partner as a beneficiary institution	The FWO participates with two of its project funding channels: ➔ Fundamental research (FO) ➔ Strategic Basic Research (SBO) Dependent on the type of research (fundamental/strategic) that will be performed, researchers applying for FWO funding have to carefully select their funding channel and write their proposal in such a way that it complies with the applicable regulations, for example: ***FO projects:*** Only lowest TRL[3] (TRL 1) will be eligible. ***SBO projects:*** The valorisation aspect, impact and innovation goals, which, if scientifically successful, can open up prospects for economic or societal applications, have to be clear. These projects imply a TRL-range from 2 to 5. Consequently, researchers have to make sure they comply with the eligibility criteria of the funding channel they select. *For 'FO' the 'Research Project' regulations apply:* *https://www.fwo.be/en/fellowships-funding/research-projects/research-project/* *For 'SBO' the 'Regulations Strategic Basic Research' apply:* *https://www.fwo.be/en/fellowships-funding/research-projects/sbo-projects/regulations-strategic-basic-research-(sbo)/*

[3] Technology Readiness level: https://www.ttopstart.com/news/technology-readiness-levels-a-new-dimension-in-horizon-2020

	On the basis of the nature of the proposal and the involved researcher(s) the FWO administration will decide on the eligibility of the proposal. Again, it is thus of utmost importance that the proposal complies with the specific regulations and eligibility requirements of the respective funding channel. **We therefore urge researchers to contact the FWO contact points before submission, in order to verify the researchers' eligibility and avoid the ineligibility of the project proposal/consortium as a whole.**
Eligibility of costs, types and their caps	The maximum amount that can be requested per project is 350.000 €, **overhead included**. **For FO projects:** Funding money can be used for staff (temporary; permanent staff cannot be appointed on FWO budget), consumables (incl. travelling) and equipment. A mandatory 6% overhead cost has to be included in the requested funding. This overhead cost of 6% on the applied for budget needs to be inserted in the 'overhead' category. **For SBO projects:** The specific SBO funding regulations apply: https://www.fwo.be/media/652551/Cost-model-SBO-and-TBM-2017.pdf
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Financial reporting: Yes Scientific reporting: depends on the funding channel - **Fundamental Research (FO)**: Reporting at ERA-NET level only; - **Strategic Basic Research (SBO)**: Besides the reporting at ERA-NET level, conform the fundamental funding channel, a report at national/regional level is also required, including a valorisation report.
Information available at	ERA-NET general: https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/ https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/oproepen/ FO regulations: https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/onderzoeksproject/ SBO regulations: https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/sbo-projecten/

OTHER	The FWO administration will contact the applicants after the pre-proposal submission deadline (and possibly also the full proposal, if applicable) in order to verify the choice of funding channel. Researchers are obliged to inform their host institution (research coordination units (DOCs)) about their participation, for administrative purposes. The FWO can assist in this matter (e.g. contacts). Additionally, in view of the GDPR regulations, explicit consent can be asked from the researchers, after submission of the project proposal, to deliver some basic information about their participation to the relevant host institutions.

BG – Bulgaria – BNSF

Country/Region	Bulgaria
Funding organisation	Bulgarian National Science Fund (BNSF)
National contact person	Milena Aleksandrova Phone: +359 884 171 363 e-mail: milena.aleksandrova@mon.bg
Funding commitment	Up to € 100,000 Up to € 50,000 per project
Anticipated number of fundable research groups	2 or 3 projects tentatively envisaged to be funded
Eligibility of project duration	36 months
Maximum funding per awarded project / partner	Up to € 50,000 per project 2 projects tentatively envisaged to be funded
Eligibility of a partner as a beneficiary institution	1) Accredited universities as defined in Art.85 para.1, p. 7 of the Higher Education Act; 2) Research organizations as defined in Art. 47, para 1 of the Higher Education Act. http://lll.mon.bg/uploaded_files/zkn_visseto_obr_01.03.2016_EN.pdf
Eligibility of costs, types and their caps	Eligible costs are specified in the "National requirements and eligibility conditions" of the Bulgarian National Science Fund available at: https://www.fni.bg/sites/default/files/competition/12_2016/ERA/BNSF_International_Programs-2017_ENG.pdf
Submission of the pre-proposal at the national level	Applicants have to submit an application form for national eligibility when submitting the proposals. The form, entitled "Administrative description of the project" should be filled in both Bulgarian and in English and signed. Application forms can be obtained at: https://www.fni.bg/?q=node/578 These forms have to be sent back in person to BNSF Registry Office before the deadline of the pre-proposal submission.
Submission of the full proposal at the national level	N/A
Submission of financial and scientific reports at the national level	Information available at: https://www.fni.bg/?q=node/578
Information available at	https://www.fni.bg/
OTHER	Applicants under this procedure shall be directly responsible for the implementation of the activities under the project proposal and shall not act as intermediaries, but they shall carry out activities under the project proposal on their behalf and at their expense. Applicants to this procedure must be entities: - Carrying out fundamental research studies; and - Whose activities are entirely of a non-profit nature; or - Whose activities are of both for-profit and not-for-profit nature, but these activities are clearly distinguished and their organization allows tracking of revenue and expenditures connected with their implementation, including by keeping analytical accounting. In the event that an applicant is involved in both for-profit and not-for-profit activities, the funding, expenditures and revenues shall be taken into account separately for each type of activity and on the basis of consistently applied principles of accounting of expenditures being justifiable.

DE – Germany – DFG

Country/Region	Germany
Funding organisation	German Research Foundation (DFG)
National contact person	Michael Mößle, +49 228 885 2351, Michael.Moessle@dfg.de Martin Winger, +49 228 885 2039, Martin.Winger@dfg.de
Funding commitment	€ 2.000.000 for the "Graphene – Basic Research" sub-call. The DFG does not participate in the "Graphene – Applied Research and Innovation" and "HBP – Basic and applied research" sub-calls.
Anticipated number of fundable research groups	10 -12 depending on average funding amounts
Eligibility of project duration	Maximum of 3 years
Maximum funding per awarded project / partner	There are no predefined limits.
Eligibility of a partner as a beneficiary institution	The general DFG rules and conditions as defined in the DFG form 50.01 "Guidelines Research Grants Programme" (10/2011) apply. This document is available on the DFG website at: http://www.dfg.de/foerderung/programme/einzelfoerderung/sachbeihilfe/formulare_merkblaetter/index.jsp . As an exception, the Guidelines on the Duty to Cooperate (DFG guideline 55.01) shall not apply.
Eligibility of costs, types and their caps	Eligible cost categories (related to specific "Programme Modules") are specified in DFG forms 52.01 – 52.07, available on the DFG website at: http://www.dfg.de/foerderung/programme/einzelfoerderung/sachbeihilfe/formulare_merkblaetter/index.jsp (Standard: "Basic Module", form 52.01).
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	Yes. A copy of the proposal has to be submitted via the DFG's ELAN system (http://www.dfg.de/en/research_funding/principles_dfg_funding/elan/index.html) at the same deadline. Please submit your proposal as a "Research Grant" ("Sachbeihilfe") and select the call "FLAG-ERA JTC 2019 Graphene".
Submission of financial and scientific reports at the national level	Financial and scientific reports needs to be submitted in accordance with the relevant rules as specified in the Guidelines for the Use of Funds and for Final Reports available on the DFG website at: http://www.dfg.de/foerderung/programme/einzelfoerderung/sachbeihilfe/formulare_merkblaetter/index.jsp
Information available at	http://www.dfg.de/en/research_funding/programmes/individual/research_grants/index.html (DFG-Website on Research Grants)
OTHER	In submitting a proposal for a research grant to the DFG, applicants agree to adhere to the rules of good scientific practice (http://www.dfg.de/en/research_funding/principles_dfg_funding/good_scientific_practice/). The DFG expects that the results of funded projects will be made available to the public.

EE – Estonia – ETAg

Country/Region	Estonia
Funding organisation	Sihtasutus Eesti Teadusagentuur/Estonian Research Council (ETAg)
National contact person	Dr Aare Ignat, aare.ignat@etag.ee, +372 731 7364
Funding commitment	200 000 €
Anticipated number of fundable research groups	2 projects tentatively envisaged to be funded
Eligibility of project duration	Up to 36 months
Maximum funding per awarded project / partner	100 000 €
Eligibility of a partner as a beneficiary institution	Detailed information in National Eligibility Criteria for grant applications in ERA-NET Calls
Eligibility of costs, types and their caps	Detailed information in National Eligibility Criteria for grant applications in ERA-NET Calls
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	According to the Agreement between PI, Institution and ETAg.
Information available at	ETAg website, ERA-NET Cofund
OTHER	The Estonian Research Council funds basic and applied research. Applied research is only funded as far as it does not refer to product development with commercial value and for marketing purposes.

ES – Spain – AEI

Country/Region	Spain
Funding organisation	Agencia Estatal de Investigación (AEI)
National contact person	Administrative and technical issues: Watse Castelein; +34 9160 38876; era-ict@aei.gob.es Scientific issues: Dr. Carles Cané (Graphene); era-ict@aei.gob.es Dr. Juan J. Garrido (HBP); era-ict@aei.gob.es Representative: Severino Falcón; severino.falcon@aei.gob.es
Funding commitment	700.000 € (total)
Anticipated number of fundable research groups	5-7
Eligibility of project duration	Up to 3 years
Maximum funding per awarded project / partner	The following funding limits are considered eligibility criteria. Proposals not respecting these limits could be declared non eligible. - Maximum per legal entity and proposal eligible for AEI should not exceed 40.000 € per year (up to 120.000 € for three year project). If two or more legal entities participate in the same proposal the AEI part should not exceed 50.000 € per year (up to 150.000 € for three year project). - For experimental groups, the above limits are increased: Up to 50.000 € per year (up to 150.000 € for three year project) for one Spanish partner. Up to 65.000 € per year (up to 195.000 € for three year project) for the whole Spanish part in case more than one Spanish partner participates in the same proposal. - If the transnational proposal is led by a PI eligible for AEI a maximum of 6.000 € per year in addition. Centres formed by different Spanish legal entities will be considered as a unique entity, and thus the maximum funding should not exceed the limits per proposal established above (for example mixed centres). The final funding will take into account the transnational evaluation of the collaborative proposal, the scientific quality of the Spanish group, the added value of the international collaboration, the participation of the industrial sector, and the financial resources available.
Eligibility of a partner as a beneficiary institution	The **eligible entities** for AEI funding are: Non-profit research organisations according to the respective PCI call *(Programación Conjunta Internacional*). Important: Hospitals, primary health care or public health settings of the Spanish National Health System (SNS), accredited Health Research Institutes and CIBER or CIBERNED eligible for ISCIII according to its annex will not be eligible for the State Research Agency funding. Please read the ISCIII Annex. ISCIII and AEI may exchange each other applicant (s) in order to maximize the available funds meeting the respective eligibility rules.

	Although private enterprises will not be funded through the PCI Call, the Spanish industrial sector is welcome to participate in the transnational consortia using their own funds. The Spanish research groups that apply for funding to AEI must comply with the requirements established by this transnational call and with the final rules on eligibility to be defined in the respective PCI call, to be published here. Mandatory: Spanish Principal investigators **must be** eligible according to the respective PCI call and must have experience as investigators in projects funded by the *Plan Nacional I+D+I 2008-2011*, the *Plan Estatal I+D+I 2013-2016*, ERC Grants, or European Framework Programmes or other relevant international programmes. Not allowed: - Principal Investigators are not allowed to apply for funding in more than one proposal of the FLAG-ERA call 2019. - Principal investigators are not allowed to apply for funding in more than one proposal in the same PCI call. - Principal Investigators are not allowed to apply for funding in two consecutive PCI calls (or their equivalent). - Principal Investigators must remain unchanged between the proposal to this transnational call and the respective PCI call. AEI will avoid double funding (overlapping with other EU or National funding), and will not grant projects or parts of projects already funded.
Eligibility of costs, types and their caps	**Eligible costs:** - Personnel costs for temporary employment contracts (scholarships are not eligible). - Current costs, small scientific equipment, disposable materials, travelling expenses and other costs that can be justified as necessary to carry out the proposed activities. - Indirect costs (overheads) or clinical assays (proofs of concept, proofs of principle) **are not eligible** for funding in the PCI call.
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad, Plan Estatal de Investigación Científica y Técnica y de Innovación 2017-2020. Enlace a Plan Estatal The instrument for funding the Spanish groups will be the Spanish Call on International Joint Programming (*Programación Conjunta Internacional*) or equivalent. Only as a reference, the beneficiaries are advised to read the call PCI 2018. The Spanish legal entities granted are obliged by the regulations established in this PCI call and by the funding limit specified above. Call will be managed by the *Subdivisión de Programas Científico-Técnicos Transversales, Fortalecimiento y Excelencia*. The projects granted by the AEI must be aligned with the main objectives described in the Programa Estatal.
Submission of financial and	See previous point.

scientific reports at the national level	
Information available at	Beneficiaries are advised to read the call PCI 2018.
OTHER	Mandatory acknowledgement: Any publication or dissemination activity resulting from the granted projects must acknowledge the AEI: "Project (reference nº XX) funded by the AEI through the PCI call (*or its equivalent*)".

ES – Spain – IDEPA

Country/Region	Spain
Funding organisation	Instituto de Desarrollo Económico del Principado de Asturias (IDEPA)
National contact person	Ms Ana Elena Fernández Monzón anae@idepa.es
Funding commitment	200.000€
Anticipated number of fundable research groups	2-3
Eligibility of project duration	Suggested: 24 month
Maximum funding per awarded project / partner	200.000€ per international proposal (expected 100.000€ per regional applicant)
Eligibility of a partner as a beneficiary institution	Only companies (whatever sized) operating in the industrial sector or in services to support industrial activities are eligible. Companies in other activities can be considered under singular conditions. R&T Centers & University are welcome as subcontractors.
Eligibility of costs, types and their caps	**Eligible costs:** (a) Personnel costs (experienced researchers and technicians); (b) Depreciation costs of instruments and equipment corresponding to the life of the research project, calculated on the basis of good accounting practices (c) Cost of contractual research: technical knowledge and patents bought or licensed at market prices, and costs of consultancy and equivalent services used exclusively for the research activity; (d) Costs of materials, supplies and similar products directly linked to the research activity; (e) Travelling costs incurred directly as a result of the research project; (f) Cost of the audit aimed to certificate the correct execution of the project. **Regional applicants are required to a minimum budget of:** 150.000€
Submission of the pre-proposal at the national level	Additional information from Asturias applicants could be required after deadline for pre-proposal submission, in order to check regional eligibility
Submission of the full proposal at the national level	Applicants from Asturias must follow the procedure that will be established in the regional call for FLAG-ERA III proposals for the funding programme: IDEPA grants for international R&D projects in Asturias under ERA.net Schemes
Submission of financial and scientific reports at the national level	Applicants from Asturias must follow the procedure that will be established in the regional call for FLAG-ERA III proposals for the funding programme: IDEPA grants for international R&D projects in Asturias under ERA.net Schemes
Information available at	https://www.idepa.es/detalle-ayuda/-/asset_publisher/EorU9gEBOv3g/content/eranet-flag-era-iii-graphene
OTHER	

ES – Spain – ISCIII

<table>
<tr><td>Country/Region</td><td>Spain</td></tr>
<tr><td>Funding organisation</td><td>National Institute of Health Carlos III (ISCIII), www.isciii.es</td></tr>
<tr><td>National contact person</td><td>Mauricio García Franco, (+34) 91 822 2885, mauriciog@isciii.es
Eduard Güell de Frago, (+34) 91 822 2454, eranetpm@isciii.es</td></tr>
<tr><td>Funding commitment</td><td>500 k€</td></tr>
<tr><td>Anticipated number of fundable research groups</td><td>3-5</td></tr>
<tr><td>Eligibility of project duration</td><td>3 years</td></tr>
<tr><td>Maximum funding per awarded project / partner</td><td>Up to 100,000 € per partner (overheads included), or
up to 175,000 € per coordinator (overheads included).</td></tr>
<tr><td>Eligibility of a partner as a beneficiary institution</td><td>
<table>
<tr><td></td><td>Coordinator</td><td>Partner</td></tr>
<tr><td>• Hospitals, primary health care or public health settings of the Spanish National Health System (SNS)[4]
• Academia or Research Centers
• Accredited Health Research Institutes (Institutos de Investigación Sanitaria acreditados, IIS)[5]</td><td>YES</td><td>YES</td></tr>
<tr><td>CIBER or CIBERNED</td><td>YES</td><td>NO</td></tr>
</table>
NOTES:
i. SMEs and other private companies are encouraged to participate at their own cost, as subcontractors or funded by other sources.
ii. Only one partner per beneficiary institution may be funded within the same proposal.
iii. Only one proposal per partner is allowed.
iv. Researchers with ongoing FLAG-ERA projects in 2020 cannot apply to the current call except if the applicant is the coordinator.
v. There is no other incompatibility with AES call 2019.
vi. Please check the provisions at the purpose stated in the other calls regarding incompatibility.
</td></tr>
<tr><td>Eligibility of costs, types and their caps</td><td>
<table>
<tr><td></td><td>Coordinator</td><td>Partner</td></tr>
</table>
</td></tr>
</table>

[4] These institutions may manage research via a foundation regulated in accordance to the Spanish Act 50/2002, of December 26th (a copy of the foundation's statutes may be submitted).

[5] Accredited according to the RD 339/2004, of February 27th or RD 279/2016 (These institutions may manage research via a foundation regulated according to the Spanish Act 50/ 2002, of December 26th) http://www.eng.isciii.es/ISCIII/es/contenidos/fd-investigacion/fd-institutos-investigacion-sanitaria/listado-de-iis-acreditados.shtml

	Personnel Up to 3-year, full-time or part-time contracts (only for additional personnel) Excluded: Students and fellowships	Total cost per annual full-time contract: Technical expert, higher degree: 29,500 € Technical expert, medium degree: 24,500 € Technical expert, FP II: 20.500 €	Not eligible
	Small Equipment	Up to 40,000 €	Up to 20,000 €
	Travel and Allowance	Up to 9,000 €	Up to 4,500 €
	Consumables	Up to 100% of direct cost	
	Subcontracting and Other Services	Up to 50% of Total cost Private (bio)companies and SMEs included	
	Overheads	Up to 21% of direct cost	
Submission of the pre-proposal at the national level	No		
Submission of the full proposal at the national level	National applications will be required by ISCIII at the time stated in the AES call 2019. ISCIII may not send invitations to submit applications to the mandatory national phase. Spanish Applicants should periodically check in the web page of ISCIII if they are qualified at the purpose. ISCIII and AEI may exchange applicants between each other in order to maximize the available funds meeting the respective eligibility rules with no application of the Note i. No double funding for the same concepts is allowed. Due to administrative and legal regulations, the National Institute of Health Carlos III declares September 23rd, 2019 as national deadline for the decision on fundable project consortia that include Spanish partners to be funded by ISCIII. Any concerned applicant in a proposal for which no final decision has been made by all its funders before such a deadline, will be declared not fundable by ISCIII.		
Submission of financial and scientific reports at the national level	1st and 2nd year and final reporting		
Information available at	Acción Estratégica en Salud (AES 2019): http://www.isciii.es/ISCIII/es/contenidos/fd-investigacion/fd-financiacion/convocatorias-ayudas-accion-estrategica-salud.shtml		
OTHER	Any publication, database, product or event protected with IPR or not, resulting from the granted project, must acknowledge "*Award no. XX by ISCIII through AES 2019 and within the FLAG-ERA JTC 2019 framework*" even after the end of the project. Researchers funded by ISCIII must make public the human genomic data, as well as relevant data (phenotype and exposition data) generated inside the funded project and will use open access repositories. Researchers must also make public all the necessary information for the interpretation of these genomic data, including lab protocols, data instruments survey tools. Regarding genomic data it is understood: association of complete genomes (GWAS), matrixes of de polymorphism of a single nucleotide (SNP) and sequence of genome, and transcriptomic, metagenomic, epigenomic and gene expression data. The researchers whose projects are funded by ISCIII are recommended to store their scientific data at the "ELIXIR Core Data Resources" or if non-European repositories or databases		

	they must be certified by ELIXIR or the US National Center for Biotechnology Information (NCBI). ISCIII may no fund project that requires a repository and / or a database without a plan ensuring sustainability and decommissioning after the end of funding.

FR – France – ANR

Country/Region	France
Funding organisation	Agence Nationale de la Recherche (ANR)
National contact person	Sergueï Fedortchenko, serguei.fedortchencko@anr.fr, +33 1 78 09 80 37 Edouard Geoffrois, edouard.geoffrois@anr.fr, +33 1 73 54 81 49
Funding commitment	2 000 k€ in total
Anticipated number of fundable research groups	8-10
Eligibility of project duration	No additional constraint in addition to the transnational level
Maximum funding per awarded project / partner	No predefined maximum. Requested funding should be justified with respect to the project work plan.
Eligibility of a partner as a beneficiary institution	The general rules of ANR apply (cf. link below). In particular, both public research institutions and enterprises can apply.
Eligibility of costs, types and their caps	The general rules of ANR apply (cf. link below). Personnel, consumables, subcontracts (within 50% of the eligible costs for the partner), equipment and travel costs are eligible. Funding rates are 100% of additional costs for public research institutions, 45% of total costs for SMEs, and 30% of total costs for large companies.
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Financial reporting at the national level is needed, using the usual ANR procedures. The FLAG-ERA level reporting takes the place of the scientific reporting for ANR.
Information available at	http://www.anr.fr/AAPProjetsOuverts
OTHER	Applicants from France must read the specific appendix available at the above-mentioned link.

GR – Greece – GSRT

Country/Region	Greece
Funding organisation	General Secretariat for Research & Technology (GSRT)
National contact person	Maria Gkizeli, mgkizeli@gsrt.gr, +30 213 1300 119
Funding commitment	1,6M€ in total
Anticipated number of fundable research groups	7-9
Eligibility of project duration	24-36 months. Under specific conditions it may be extended by 33%.
Maximum funding per awarded project / partner	200 k€ per project (up to 250 k€ if the coordinating partner is in Greece)
Eligibility of a partner as a beneficiary institution	All private and public legal entities namely: private-SMEs, private large-companies, non-profit research organizations, higher education institutions, public research organizations, public organizations (individuals and individual enterprises are not supported).
Eligibility of costs, types and their caps	(a) Personnel costs: researchers, technicians and other supporting staff to the extent employed on the project. (b) Costs on fixed assets i.e. b1) costs of instruments and equipment to the extent and for the period used for the project. Where such instruments and equipment are not used for their full life for the project, only the depreciation costs corresponding to the life of the project, as calculated on the basis of generally accepted accounting principles are considered as eligible and b2) costs for of buildings and land, to the extent and for the duration period used for the project. With regard to buildings, only the depreciation costs corresponding to the life of the project, as calculated on the basis of generally accepted accounting principles are considered as eligible. For land, costs of commercial transfer or actually incurred capital costs are eligible. (c) Costs of contractual research, knowledge and patents bought or licensed from outside sources at arm's length conditions, as well as costs of consultancy and equivalent services used exclusively for the project. (d) Additional general costs and other operating expenses, including costs of materials, supplies, travel expenses, organization of meetings, dissemination/publicity costs, audit costs, incurred directly as a result of the project implementation. (e) Indirect costs = flat rate 15% of gross personnel costs excluding VAT = 15%*(a-(VAT of a)). Indirect costs are eligible for all legal entities and include costs that do not incur directly as a result of the project implementation (e.g. administrative and management costs, utility costs). Note: Please bear in mind that scientific management costs are eligible under category (a), whereas administrative and financial/legal management costs fall under eligible categories (e) or (d)-audit costs only. Funding rates (i.e. aid intensity) depend on the beneficiary category and the type of research conducted. Please refer to the latest national guide below

	(p. 36-37).
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Scientific reporting is not required at this stage. A national call will be published for the submission of the approved, at the transnational level, proposals only. Concerning financial reporting, the NCP will contact all Greek applicants after the submission of the pre-proposal.
Information available at	This Annex is for general guidance only. More detailed information (e.g. eligibility criteria, funding rates) can be found at the latest national guide available at the following link: http://www.gsrt.gr/central.aspx?sId=108I334I1106I646I444510&olID=777&neID=673&neTa=12_20503_1&ncID=0&neHC=0&tbid=0&lrID=2&oldUIID=aI777I0I119I428I1089I0I3&actionID=load
OTHER	All applicants are strongly encouraged to contact the NCP prior to submission. National funding comes from the Operational Programme for Competitiveness, Entrepreneurship and Innovation 2014-2020, Research and Innovation Strategy for Smart Specialization (RIS3). The aided part of the research should fall within one or more of the following categories: industrial research, experimental development, and feasibility studies (COMMISSION REGULATION (EU) No 651/2014 article 25).

HU – Hungary – NKFIH

Country/Region	Hungary
Funding organisation	Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal (NKFI Hivatal) National Research, Development and Innovation Office (NRDI Office)
National contact person	Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal Kéthly Anna tér 1, Budapest, H-1077, Hungary Edina.Nemeth@nkfih.gov.hu, +36-70-221-0387 National Contact Point for Horizon 2020 ICT & FET
Funding commitment	The total indicative national funding for this call is 600 000€, corresponding to an indicative funding of 300 000€ per Flagship. (The funds unused in one Flagship can be used in the other Flagship)
Anticipated number of fundable research groups	2 participants per Flagship.
Eligibility of project duration	Up to 3 years
Maximum funding per awarded project / partner	150.000 € per partner
Eligibility of a partner as a beneficiary institution	Eligible applicants from Hungary are entities falling under any of the following GFO codes: • enterprise with legal entity (GFO code: 11X) • non-profit organisation with legal entity (GFO code: 5XX) • budgetary units and entities (eg. higher education institutions, municipalities;) (GFO code: 3XX) • enterprise with a registered office in the European Economic Area and a branch in Hungary (GFO: 226).
Eligibility of costs, types and their caps	All research-related costs in accordance with government decree 380/2014 (XII.31). In case a partner is subject to State Aid rules, funding intensity shall be set at a level that complies with the State Aid rules in force at the time of the funding decision (Commission Regulation No 651/2014 of 17 June 2014) (The Guide for Applicants for the NN_18 national call are applicable)
Submission of the pre-proposal at the national level	Not required.
Submission of the full proposal at the national level	Following the international selection of the projects to be funded, a proposal should be formally submitted to NKFI Hivatal through its electronic proposal system (EPR). Proposers will receive guidance on the submission by NKFI Hivatal.
Submission of financial and scientific reports at the national level	Financial and scientific reports need to be submitted in accordance with the relevant rules prescribed in the international call and the national grant agreement (annually).
Information available at	http://www.nkfih.gov.hu
OTHER	

IL – Israel – InnovationAuth / ISERD

<table>
<tr><td>Country/Region</td><td>Israel</td></tr>
<tr><td>Funding organisation</td><td>The National Technological Innovation Authority (InnovationAuth)</td></tr>
<tr><td>National contact person</td><td>Danny Seker, Dan@iserd.org.il, +972-3-5118121</td></tr>
<tr><td>Funding commitment</td><td>1 000 000 € in total</td></tr>
<tr><td>Anticipated number of fundable research groups</td><td>3-5</td></tr>
<tr><td>Eligibility of project duration</td><td>Up to 24 months</td></tr>
<tr><td>Maximum funding per awarded project / partner</td><td>
<table>
<tr><th>Type of organization</th><th>Funding % of eligible costs</th><th>Maximum Financial Support</th><th>Additional information</th></tr>
<tr><td>SME</td><td>66%</td><td>500K Euro</td><td>Nofar or Magneton rules will apply</td></tr>
<tr><td>Large Industry</td><td>66%</td><td>500K Euro</td><td>Nofar or Magneton rules will apply</td></tr>
<tr><td>University</td><td>90%</td><td></td><td>Nofar or Magneton rules will apply</td></tr>
</table>
</td></tr>
<tr><td>Eligibility of a partner as a beneficiary institution</td><td>The National Technological Innovation Authority supports generic R&D that is still far from practical implementation in the market and forming bonds between the academia and the industry that will ultimately produce products based on advanced knowledge and technology. Following entities are eligible to apply:

- Industrial enterprises with R&D capabilities

- Research Organizations/Academy

Entities must be registered in Israel.

Financial viability and business soundness is verified by means of an internal check - companies that are in danger of insolvency cannot be funded.

Nofar or Magneton programs rules apply.</td></tr>
<tr><td>Eligibility of costs, types and their caps</td><td>Funding will be provided according to the rules of Nofar or Magneton programs:

A project that was approved for an Israeli enterprise that involves a technology transfer from an Israeli research organization/s to Israeli enterprise/s – up to 66% of the approved budget.

- A project of an Israeli enterprise with self R&D capabilities - up to 50% of the approved budget.

- A research project of an Israeli research organization / academy, that was approved based on Nofar program rules - up to 90% of the approved budget.</td></tr>
<tr><td>Submission of the pre-</td><td>The National Technological Innovation Authority requires a national application, to be submitted in parallel to the international pre-proposal</td></tr>
</table>

proposal at the national level	stage. Israeli applicants must contact ISERD (cf. contact information above) before proposal submission for the purpose of checking national funding terms and conditions.
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	**Nofar** or **Magneton** programs rules apply.
Information available at	Call announcement - at ISERD website (www.iserd.org.il). Nofar - https://innovationisrael.org.il/program/2740 Magneton - https://innovationisrael.org.il/program/2724
OTHER	

IT – Italy – MIUR

Country/Region	Italy
Funding organisation	Ministry for Education, University and Research (MIUR)
National contact person	Giorgio Carpino, e-mail: giorgio.carpino@miur.it, tel. +39 06 5849 7147 Aldo Covello, e-mail: aldo.covello@miur.it, tel. +39 06 5849 6465
Funding commitment	Indicatively, MIUR budget is split between the three sub-calls as follows: 1) Graphene / Basic research: 0 €; 2) Graphene / Applied research and innovation: 300.000 € as grant; 3) HBP / Basic and applied research: 300.000 € as grant. All activities classifiable as Basic Research (only for the sub-call "HBP / Basic and applied research"), Industrial research and Experimental development (both for the sub-call "HBP / Basic and applied research" and for the sub-call "Graphene / Applied research and innovation") are eligible for funding. Furthermore, Basic research and Industrial research activities must be predominant with respect to Experimental development activities.
Anticipated number of fundable research groups	A maximum of two Italian participants per project proposal is admitted. A Principal Investigator can participate (either as coordinator or as partner) in only one project proposal.
Eligibility of project duration	No additional constraint in addition to the transnational level.
Maximum funding per awarded project	A maximum grant of 150.000 Euro can be awarded to each project proposal, even if it includes more than one Italian participant.
Eligibility of a partner as a beneficiary institution	The following entities are eligible, providing that they have stable organization in Italy: enterprises, universities, research institutions, research organizations in accordance with EU Reg. n. 651/2014 of the European Commission - June 17, 2014. Any participant, in order to be eligible, must comply with the eligibility criteria listed in the art. 2.4 of the "Linee guida al DM 593/2016".
Eligibility of costs, types and their caps	All activities classifiable as Basic research, Industrial research and Experimental research are eligible for funding. Furthermore, Basic Research and Industrial research activities must be predominant with respect to Experimental research activities (in terms of costs). All costs incurred during the lifetime of the project under the following categories are eligible: Personnel, Equipment, Consulting and equivalent services, Consumables and Overheads. Overheads ("Spese generali") shall be calculated as a percentage of the personnel costs and cannot be higher than 50% of them. Travel expenses, dissemination and coordination costs are to be included in the overheads. The amount of funding which can be granted to each beneficiary is calculated multiplying the eligible costs for the funding rate listed in the following table:

<table>
<tr><td></td><td>
<table>
<tr><th colspan="2" rowspan="2">Applicant typology
Activity typology</th><th colspan="4">Funding Rates</th></tr>
<tr><th colspan="3">Enterprises and private research bodies (which meets the requirements of research organization under EU Reg. no. 651/2014 of the Commission - June 17, 2014)</th><th rowspan="2">Universities, public research institutions, research organizations (public and private) in accordance with Reg. EU n. 651/2014 of the Commission - June 17, 2014)</th></tr>
<tr><th></th><th>Small Enterprises</th><th>Medium Enterprises</th><th>Big Enterprises</th></tr>
<tr><td>Basic Research</td><td>grant</td><td>40%</td><td>30%</td><td>20%</td><td>70%</td></tr>
<tr><td>Industrial Research</td><td>grant</td><td>40%</td><td>30%</td><td>20%</td><td>50%</td></tr>
<tr><td>Experimental Research</td><td>grant</td><td>30%</td><td>20%</td><td>10%</td><td>25%</td></tr>
</table>

On request of applicants a pre-payment may be done. The amount of the pre-payment is defined in the “Avviso integrativo nazionale”. The remaining part of contribute will be paid in instalments after each financial and progress reporting period.
</td></tr>
<tr><td>Submission of the pre-proposal at the national level</td><td>In addition to the project proposal, which shall be submitted at European level, the Italian participants are requested to submit further documentation to MIUR, through the national web platform, available at the following link: http://banditransnazionali-miur.cineca.it
These national additional documents must be submitted by the same deadline established for the pre-proposal phase submission as defined in the international joint call. Any participant who does not submit its national documents by the deadline of the pre-proposal phase will be considered not eligible for funding.
It is strongly recommended to contact the National Contact Persons already in early stage of project preparation.</td></tr>
<tr><td>Submission of the full proposal at the national level</td><td>MIUR will require to all Italian participants admitted to the full proposal phase some additional documents describing in more detail the participant and its research activities within the project.</td></tr>
<tr><td>Submission of financial and scientific reports at the national level</td><td>The admission for funding is subject to the adoption of the necessary accounting and administrative measures for the allocation of the resources.

Funded participants will be requested to submit financial and scientific reports to MIUR.</td></tr>
<tr><td>Information available at</td><td>http://www.ricercainternazionale.miur.it/era/eranet-cofund-(h2020)/flag-era-iii.aspx</td></tr>
<tr><td>OTHER</td><td>The criteria and provisions provided herewith are intended only for informative purposes. The complete list of criteria and provisions legally valid, which must be respected by all the Italian participants, is included in the “Avviso integrativo nazionale”, published on the dedicated web page on MIUR website (http://www.ricercainternazionale.miur.it/era/eranet-cofund-(h2020)/flag-era-iii.aspx), and in the applicable Italian laws.

Applicable laws and rules:

- Decreto legge n. 83/2012
- Decreto Ministeriale n. 593 del 26 luglio 2016</td></tr>
</table>

	- Linee guida al D.M. del 26 luglio 2016 n. 593 - Procedure operative per il finanziamento dei progetti internazionali ex art. 18 D.M. del 26 luglio 2016 n. 593

LT – Lithuania – LMT

Country/Region	Lithuania
Funding organisation	Research council of Lithuania (LMT)
National contact person	Dr. Saulius Marcinkonis, saulius.marcinkonis@lmt.lt, +370 676 17256, Research Council of Lithuania, Gedimino pr. 3, Vilnius, Lithuania
Funding commitment	€ 100.000 per Flagship (€ 200.000 in total)
Anticipated number of fundable research groups	2 (in total)
Eligibility of project duration	Up to three years
Maximum funding per awarded project / partner	The maximum amount of requested funding per project is € 100.000
Eligibility of a partner as a beneficiary institution	The General Rules of the Research Council of Lithuania for the Competitive Funding of Research and Dissemination Projects apply: Lithuanian higher education and research institution (which is listed in the Register of Ministry of Education and Science of Republic of Lithuania); SME (in collaboration with Lithuanian higher education and research institution); The applicant who intends to act as a project leader (PL) or principal investigator (PI) has to be a scientist (researcher holding at least a Ph.D. degree); A person, acting as a PL, PI or a core group member can participate only in one proposal per Call. The workload of the core members of project team must be at least 20 hours multiplied by the duration of the project in months.
Eligibility of costs, types and their caps	Funding rates are 100% of eligible costs. Eligible direct costs: • Personnel • Subcontracting • Consumables • Travel and Subsistence • Equipment • Other Overheads: • Up to 30% of Personnel and Subcontracting costs.
Submission of the pre-proposal at the national level	NO
Submission of the full proposal at the national level	NO
Submission of financial and scientific reports at the national level	Financial and scientific (mid- term and final) reporting at the national level is required, using the usual LMT procedures.
Information available at	https://www.lmt.lt/lt/mokslo-finansavimas/era-net-ir-kitos-koordinavimo-veiklos/flag-era-ii/2351
OTHER	For detailed information please contact the National contact person

LV – Latvia – VIAA

Country/Region	Latvia
Funding organisation	Valsts izglitibas attistibas agentura (VIAA)
National contact person	Dr. Maija Bundule, maija.bundule@viaa.gov.lv
Funding commitment	300 000 €
Anticipated number of fundable research groups	2 -3
Eligibility of project duration	Up to three years
Maximum funding per awarded project / partner	Up to 70 000 € per project partner, per project year
Eligibility of a partner as a beneficiary institution	The following legal persons (as defined under the Latvian law) are eligible as beneficiaries: - R&D institutions: research institutes, universities, higher education establishments, their institutes and research centres, etc., which are listed in the Register of Ministry of Education and Science of the Republic of Latvia; - Enterprises and companies, which are registered in the Register of Enterprises and performing their core business in the Republic of Latvia.
Eligibility of costs, types and their caps	Direct costs: - Personnel costs, - Other direct costs such as consumables, equipment (only depreciation costs), materials, organization of events, publications, etc., - Subcontracts (up to 20% of total direct costs), - Travel costs. Indirect costs can reach a maximum of 25% of the total direct costs excluding subcontracts.
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Financial and scientific (periodic and final) reporting at the national level will be needed in accordance with the terms of national contract.
Information available at	www.viaa.gov.lv
OTHER	The funding of RTD activities is provided pursuant to the Law on Research Activity (adopted on 14 April 2005 with amendments) and Regulation of the Council of Ministers of the Republic of Latvia No 259 on the procedure for providing support for participation in international cooperation programs for research and technology (adopted on 26 May 2015). National co-financing rate for state aid project shall be determined in accordance with the Commission's Regulation (EC) No 651/2014 of 26 June 2014 declaring certain categories of aid compatible with the common market in application of Articles 107 and 108 of the Treaty (General block exemption Regulation).

NL – Netherlands – NWO

Country/Region	The Netherlands
Funding organisation	Netherlands Organisation for Scientific Research (NWO)
National contact person	Dr Eelco van Dongen, e.vandongen@nwo.nl, +31 70 349 4005
Funding commitment	A total budget of 750 k€ is available for HBP basic and applied research. With this budget NWO aims to fund Dutch applicant(s) in up to 3 projects. **NOTE**: budget of one of the three NWO funded projects is earmarked: it is dedicated for a project focusing on HBP JTC areas 1 (development and maturation of cognitive processes and multisensory integration at micro- and macro-scales), 2 (the role of neurotransmitter systems in human cognition), 4 (the neuroscience of decision-making) or 6 (disease modelling and simulation). In addition, that project preferentially relates to early recognition, treatment and personalized care and preferentially in the context of neurodevelopmental diseases.
Anticipated number of fundable research groups	3
Eligibility of project duration	No additional constraints in addition to those at the transnational level.
Maximum funding per awarded project / partner	The maximum amount of awarded NWO funding per project is 250 k€.
Eligibility of a partner as a beneficiary institution	The most recent NWO Grant Rules apply (see NWO Grant Rules). Senior researchers who are employed at Dutch universities or NWO- and KNAW-institutes may apply for funding and participate in a consortium as main applicant or as co-applicant. An applicant may be involved in up to two proposals, of which only one as main applicant. Please also check our data management protocol: https://www.nwo.nl/en/policies/open+science/data+management
Eligibility of costs, types and their caps	The NWO Grant Rules apply, and salary costs are funded in accordance with the most recent VSNU contract (see Salary tables) and come with an additional 5k€ bench fee per salaried scientific position. Applicants may apply for material costs (max 20% of the requested funds), including equipment, travel costs, network and consortium costs, non-scientific personnel, etc. Overhead costs are not eligible.
Submission of the pre-proposal at the national level	No. However, prior to submission, applicants from the Netherlands should contact the National Contact Point indicated above.
Submission of the full proposal at the national level	No. However, prior to submission, applicants from the Netherlands should contact the National Contact Point indicated above.
Submission of financial and scientific reports at the national level	Financial and scientific (mid-term and final) reporting of funded projects at the national level is required, according to general NWO procedures.
Information available at	
OTHER	NWO does not financially support Graphene in this call

RO – Romania – UEFISCDI

Country/Region	Romania
Funding organisation	Executive Agency for Higher Education, Research, Development & Innovation Funding (UEFISCDI)
National contact person	Cristina Cotet, cristina.cotet@uefiscdi.ro Domnica Cotet, domnica.cotet@uefiscdi.ro
Funding commitment	500.000 Euro
Anticipated number of fundable research groups	3-4
Eligibility of project duration	36 months
Maximum funding per awarded project / partner	250.000 euro if the Romanian applicant is coordinators (no matter how many Romanian applicants there are). 200.000 euro if the Romanian applicant is partner (no matter how many Romanian applicants there are).
Eligibility of a partner as a beneficiary institution	All legal entities (public and private sector)
Eligibility of costs, types and their caps	The general rules of UEFISCDI apply (cf. link below). Staff costs, consumables, equipment, subcontracts (within 25% of the eligible costs for the partner), travel costs and indirect costs (20% from direct costs) are eligible. The aid intensity is applying in respect of type of organization and type of eligible activity (cf. link below).
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	If the project was selected for funding
Submission of financial and scientific reports at the national level	Reports are required at the national level, using the UEFISCDI procedures.
Information available at	http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html
OTHER	The Romanian applicants must read carefully the information available at the link http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html

SE – Sweden – VR & Vinnova

Country/Region	Sweden
Funding organisation	Swedish Research Council (VR) and Sweden's Innovation Agency (Vinnova)
National contact person	**VR:** **Tomas Andersson, +46 8 546 441 73, tomas.andersson@vr.se &** **Camilla Grunditz, +46 8 546 441 55, camilla.grunditz@vr.se** **Vinnova:** **Maria Öhman, +46 8 473 31 89, maria.ohman@vinnova.se &** **Johan Lindberg, +46 8 454 64 53, johan.lindberg@vinnova.se**
Funding commitment	**VR** has committed in total SEK 2.5 million per year for Graphene – Basic research. **Vinnova** has committed in total SEK 2.5 million per year for Graphene – Applied research and innovation. The figures below are approximations according to our expectations: **Sub-call Graphene – Basic research:** €250 000 (approx. SEK 2.5 million per year for three years Funding organisation: VR **Sub-call Graphene – Applied research and innovation:** €250 000 (approx. SEK 2.5 million) per year for three years Funding organisation: Vinnova
Anticipated number of fundable research groups	4-8
Eligibility of project duration	3 years
Maximum funding per awarded project	Indicative SEK 0.5-1.5 million per year for three years for the Swedish partner
Eligibility of a partner as a beneficiary institution	**VR:** 1. VR funds Swedish partners within the sub-call **Graphene – Basic Research**. 2. VR funds basic research of the highest scientific quality, and promotes research collaboration and the exchange of experience. 3. Only legal persons are eligible as partners, natural persons are not allowed. 4. The investigators need to hold a PhD at the time of application. **5. The grants distributed by VR must be administrated by a Swedish university, higher education institution (HEI) or other public organisation that fulfils the Swedish Research Councils criteria for an administrating organisation:** https://vr.se/english/calls-and-decisions/apply-for-a-grant/who-can-apply.html 6. A researcher may only apply for funds from VR in **one** application in the FLAG-ERA JTC

<table>
<tr><td></td><td>2019. A researcher who already has an ongoing project from VR in the FLAG-ERA JTC 2017 is not eligible to apply.

Vinnova:

1. Vinnova only funds partners within the sub-call Graphene – Applied research and innovation

2. Only legal persons, with an establishment or branch in Sweden, are eligible as partners (e.g. research organizations such as universities and research institutes, and private companies). Natural persons are not allowed.

3. When Vinnova fund private companies, the applicant must fulfil the following three conditions:
• The participating company is a joint-stock with an establishment or branch in Sweden, and with business along with a recognizable record of R&D and industrial/commercial activities in Sweden. Research institutes does not count as a private company in this term.
• The participating company has a stable financial status and is able to cover its own expenses for the duration of the project.
• The participating company is required to provide a credible proof for the positive impacts of the project outcome on the participant’s growth and future assets.</td></tr>
<tr><td>Eligibility of costs, types and their caps</td><td>VR :

The grant can be used to cover any type of project-related costs, for example salaries (including your own salary, corresponding to your level of activity in the project), travel (including visits to, and stays at, research facilities), publication costs, minor equipment and depreciations, etc. The grant may not be used for scholarships. If the project involves a doctoral student, project funding may not be used to pay salary for the time the doctoral student is teaching. The minimum amount for which you may apply is SEK 400 000 per year, including indirect costs.

Vinnova:

1. Vinnova's contribution is granted in accordance with the Governmental ordinance 2015:208 regarding state aid to research, development and innovation (Förordning 2015:208 om statligt stöd till forskning och utveckling samt innovation).
Vinnova’s general terms and conditions for granting projects is found at:
https://www.vinnova.se/globalassets/dokument/allmanna-villkor-2018.pdf

2. Vinnova's grant is a contribution to the project's eligible costs, as stated in Vinnova’s general terms and conditions for granting projects. In order for a cost to be eligible, it shall be actual and auditable, be incurred by a partner, be established in accordance with the partners usual and generally accepted accounting principles, be recorded, be used for the sole purpose of achieving the objectives of the project, and have been incurred during the project period.
For a more detailed description of eligible costs, see 4.1– 4.5 in:
https://www.vinnova.se/globalassets/dokument/guide-till-vinnovas-villkor-om-stodberattigande-kostnader-2017-04-21-master.pdf

3. When Vinnova funds partners with economic activity, the maximum funding level of the total eligible costs will depend on the type of research activity:
<table><tr><td>Type of research activity</td><td>Large Enterprise</td><td>Medium Enterprise**</td><td>Small Enterprise**</td></tr></table></td></tr>
</table>

	<table><tr><td>Industrial Research*</td><td>50 %</td><td>60 %</td><td>70 %</td></tr><tr><td>Experimental development*</td><td>25 %</td><td>35 %</td><td>45 %</td></tr></table> *For definitions, see Chapter 1, article 2, No 85 and 86 (p.25) in the Commission regulation (EU) no 651/2014 ** For definitions of small- and medium size enterprises, see http://ec.europa.eu/DocsRoom/documents/15582/attachments/1/translations Additional funding can be granted if special conditions are met, see https://www.vinnova.se/globalassets/dokument/tabell-stodnivaer-statligt-stod.pdf
Submission of the pre-proposal at the national level	**VR**: Yes, the preproposal must be submitted at national level. The call closes 26 February 2019 at 14.00. Please see: www.vr.se/5.4c3df121669c50e9eb59e.html (Swedish) or www.vr.se/5.4c3df121669c50e9eb65b.html (English) **Vinnova**: No
Submission of the full proposal at the national level	**VR**: Yes, for applicants invited to the full proposal stage, the full proposal must be submitted at national level. These applicants will be contacted by VR in late May when an exact deadline will be announced (indicative early July 2019). **Vinnova**: Yes, the full proposals selected for funding must be resubmitted at national level if funded. Funded projects will be invited by Vinnova to resubmit the proposal. These applicants will be contacted by Vinnova in late May when an exact deadline will be announced (indicative early July 2019).
Submission of financial and scientific reports at the national level	**VR**: Financial reports will be annual whereas scientific reports will be due at the end of the project. **Vinnova:** Financial and scientific reports must be submitted at national level every sixth month during the project.
Information available at	**VR:** www.vr.se **Vinnova:** https://www.vinnova.se/m/horisont-2020/partnerskapsprogram/flag-era-grafen/
OTHER	

SI – Slovenia – MIZS

Country/Region	Slovenia
Funding organisation	Ministry of Education Science and Sport
National contact person	Andrej Ograjensek, andrej.ograjensek@gov.si, +386 1 478 4634
Funding commitment	630.000 € including VAT
Anticipated number of fundable research groups	Up to 3 projects
Eligibility of project duration	36 months (3 years)
Maximum funding per awarded project / partner	Max 210.000 €
Eligibility of a partner as a beneficiary institution	Research organizations as defined in the national *Research and Development Act (Zakon o raziskovalni in razvojni dejavnosti – ZRRD).*All participating institutions have to be registered in the Slovenian Research Agency register of research institutions (Informacijski sistem o raziskovalni dejavnosti v Sloveniji - Sicris).
Eligibility of costs, types and their caps	**Eligibility of costs**: MIZS will fund all eligible costs of Slovenian researchers participating in successful transnational projects, recommended for funding in accordance with the *Decree on criteria and standards*. Eligible costs are defined based on the FTE value according to the Slovenian Research Agency's research project categorization (A, B, C or D based on the research conducted). Eligible costs must be directly related to the research conducted and should include personnel, material and equipment costs as elements of the FTE. Indirect costs are eligible. The value is calculated based on the FTE value of category A, B,C, or D research projects, under the condition that costs under each of the specific FTE elements are appropriately decreased (by a max. of 20% for indirect costs). Providing the stipulated conditions are met, the Public Procurement Act (Zakon o javnem naročanju (Uradni list RS, št. 91/15 in 14/18) applies.
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Financial reports are submitted yearly at national level and final financial and scientific reports at the end of the project according to internal procedures.
Information available at	http://www.mizs.gov.si/si/javne_objave_in_razpisi/javni_razpisi/
OTHER	**Legal basis – national regulation**: State Administration Act (Zakon o državni upravi (Uradni list RS, št. 113/05 - UPB4, 89/07 - Odl.US, 126/07 - ZUP-E, 48/09, 8/10 - ZUP-G, 8/12 - ZVRS-F, 21/12, 47/13, 12/14, 90/14 in 51/16)) - Article 16 and 39; Public Finance Act (Zakon o javnih financah (Uradni list RS, št. 11/11- uradno prečiščeno besedilo, 14/13 – popr., 101/13, 55/15 – ZfisP, 96/15 – ZIPRS1617 in 13/18)) - Article 106. j; Regulation on the procedure of standards and manners to allocate means for the promotion of the evolutional programme and the preferential tasks (Uredba o postopku, merilih in načinih dodeljevanja sredstev za spodbujanje razvojnih programov in prednostnih nalog (Uradni list RS, št. 56/11)); Implementation of the Republic of Slovenia's Budget for 2018 and 2019 Act (Zakon o izvrševanju proračunov Republike Slovenije za leti 2018

	in 2019 (ZIPRS 1819) (Uradni list RS, št. 71/17 in 13/18-ZJF-H)*;* Integrity and Prevention of Corruption Act (Zakon o integriteti in preprečevanju korupcije (Uradni list RS, št. 69/11 – uradno prečiščeno besedilo)); Resolution on the National Research and Development Programme 2011-2020 (Resolucije o raziskovalni in inovacijski strategiji Slovenije 2011-2020 (RISS) (Uradni list RS, št. 43/11)), Research and developmnet Act (Zakona o raziskovalni in razvojni dejavnosti (Uradni list RS, št. 22/06 – UPB1, 61/06-ZDru-1, 112/07, 9/11,57/12-ZPOP-1A in 21/18-ZNOrg)); Decree on norms and standards used to determine funding for research activities financed from the Republic of Slovenia budget (Uredbe o normativih in standardih za določanje sredstev za izvajanje raziskovalne dejavnosti, financirane iz Proračuna Republike Slovenije (Uradni list RS, št. 103/11, 56/12, 15/14, 103/15, 27/17 in 9/18)); Rules on criteria for establishing compliance with the conditions for being the head of a research project (Pravilnik o kriterijih za ugotavljanje izpolnjevanja pogojev za vodjo raziskovalnega projekta, Uradni list RS št. 53/16); Community Framework for State Aid for Research and Development and Innovation the provisions of the Community Framework for State Aid for Research and Development and Innovation (OJ EU C 198, 27. 6. 2014) (Okvir za državno pomoč za raziskave in razvoj ter inovacije (2014/C 198/01)); National scheme for state aid in Research and Development (Program za spodbujanje raziskav in razvoja Ministrstva za izobraževanje, znanost in šport na področju znanosti 2016-2020, št. 631-1/2016-1 z dne 8. 1. 2016); National strategy of open access to scientific publications and research data in Slovenia 2015-2020 (Nacionalna strategije odprtega dostopa do znanstvenih objav in raziskovalnih podatkov v Sloveniji 2015-2020, št. 60300-5/2015/5 z dne 3. 9. 2015). **Eligibility of principal investigator and other research team members:** The project activities of the Slovenian partner have to be under the supervision of the primary investigator/primary researcher who fulfills the requirements for project leader as defined in Art. 29 of the national Decree on norms and standards used to determine funding for research activities financed from the Republic of Slovenia budget *(Uredba o normativih in standardih za določanje sredstev za izvajanje raziskovalne dejavnosti, financirane iz Proračuna Republike Slovenije, Uradni list RS, št. 103/11, 56/12, 15/14, 103/15*, 27/17 in 9/18) *hereinafter*: *Decree on criteria and standards*). The criteria are further determined in the *Rules on Determining the Fulfillment of Conditions for a Research Project Leader (Pravilnik o kriterijih za ugotavljanje izpolnjevanja pogojev za vodjo raziskovalnega projekta)*. All participating researchers have to be registered in the Slovenian Research Agency register of researchers (Sicris) and must have available research hours. **Type of research funded:** basic/applied – for Slovenian partner TRL range: 1-6. The type of research conducted by Slovenian researchers must be defined and explained in the project proposal (e.g. in the Comments on budget section). **Period of eligibility of public expenditures**: as of budgetary year 2020 until the end of the budgetary year 2023. **Period of eligibility of expenditures on the project**: From the starting date of the transnational project stipulated in the consortium agreement for a period of 36 months, with a prescribed additional 30 day period for the payment of invoices related to the project costs. The period of eligibility of expenditures on the project can only start from the date the national

	contract enters into effect. The exact duration of the project will be defined in the contract between MIZS and the selected Slovenian partner, after the consortium agreement between the selected consortium partners enters into force. **Funding:** 100 % for research organization (such as universities, public and private research institutes) whose financed activity is non-economic in accordance with the provisions of Community Framework for State Aid for Research and Development and Innovation. Wide dissemination of all research results on a non-exclusive and non-discriminatory basis is required. **National contracting negotiations:** will commence after the projects are selected for funding on the level of the transnational call. National documentation, including evidence of the starting date of the transnational project (in the form of a Consortia Agreement or statement on the starting date by the transnational project coordinator), will be a prerequisite for signing the contract on national level. All Slovenian applicants are strongly advised to contact the Slovenian National Contact Person, Mr. Andrej Ograjensek before preparing proposals for application (andrej.ograjensek@gov.si; +386(1)4784634).

SK – Slovakia – SAS

Country/Region	Slovakia
Funding organisation	Slovak Academy of Sciences (SAS)
National contact person	Ján Barančík, PhD. barancik@up.upsav.sk Zuzana Panisová, panisova@up.upsav.sk
Funding commitment	240 000 € (120 000 € Graphene, 120 000 € HBP)
Anticipated number of fundable research groups	Max. 2
Eligibility of project duration	Max. 36 months
Maximum funding per awarded project / partner	120 000 € / 36 months / partner
Eligibility of a partner as a beneficiary institution	Only SAS research institutes are eligible organisations for funding (up to 100%). Applicants from other Slovak R&D centres (universities and/or other organisations from Slovakia) have to cover the project costs from their own sources (Letter of Commitment). In addition to this, the teams outside of SAS can be consortium members but not the coordinator of the consortium.
Eligibility of costs, types and their caps	Direct costs (DC): ▪ Personnel (max. 15% of DC, 30% if SAS is project coordinator) ▪ Consumables ▪ Equipment (max. 40% of DC) ▪ Travel costs Indirect costs (IC) - overheads: max. 20 % of DC. Total eligible costs = DC + IC
Submission of the pre-proposal at the national level	No
Submission of the full proposal at the national level	No
Submission of financial and scientific reports at the national level	Yes
Information available at	https://www.sav.sk/index.php?lang=sk&doc=services-news&source_no=25&news_no=7569
OTHER	It is highly recommended to contact NCP prior to submission of pre-proposal. According to the Resolution of SAS Presidium No. 346, participants are requested to submit "Letter of Commitment" within the deadline for submission of the project pre-proposals. For further details, please contact National Contact Person. The participation of the young scientists (Early Career Scientists) is highly appreciated. The Early Career Scientist must have been awarded his/her first doctoral degree at least 3 and up to 10 years prior to the pre-proposal submission deadline.

TR – Turkey – TUBITAK

Country/Region	Turkey
Funding organisation	The Scientific and Technological Research Council of Turkey (TUBITAK)
National contact person	Serkan ÜÇER, serkan.ucer@tubitak.gov.tr, ncpfet@tubitak.gov.tr, +90 312 2981787
Funding commitment	2.500M€
Anticipated number of fundable research groups	10-15
Eligibility of project duration	Up to 36 months.
Maximum funding per awarded project / partner	ARDEB 1001: 720K TL TEYDEB 1509: No limitation.
Eligibility of a partner as a beneficiary institution	Higher education institutions, their institutes and R&D centres; Associate laboratories; State laboratories; Private non-profit institutes and Companies (Industry & SMEs) whose main objective is to carry out S&T activities
Eligibility of costs, types and their caps	Equipment, consumables, human resources, travel, overheads, dissemination (like printing of booklets or organizing workshops)
Submission of the pre-proposal at the national level	Yes.
Submission of the full proposal at the national level	Yes.
Submission of financial and scientific reports at the national level	Yes.
Information available at	Information will be available soon after the launch of the call at www.h2020.org.tr website
OTHER	Selected proposals will be funded under either: • ARDEB 1001 Scientific and Technological Research Projects Funding Program, or • TEYDEB 1509 International Industrial R&D Funding Programme In general: proposals that are more academic research oriented are advised to apply for the ARDEB 1001 Research Projects Programme. Proposals that are more commercial/industrial research oriented are advised to apply for the TEYDEB 1509 International Industrial R&D Funding Programme. Researchers should identify the most appropriate program for their proposals by analysing the program details in which can be found on: • ARDEB 1001: https://www.tubitak.gov.tr/en/funds/academy/national-support-programmes/content-1001-scientific-and-technological-research-projects-funding-program

	• TEYDEB 1509: https://www.tubitak.gov.tr/en/funds/industry/international-support-programmes/content-1509-tubitak-international-industrial-rd-projects-grant-programme In addition to international submission, Turkish partners also need to complete their national submissions during both first and second stages. **It is strongly recommended to contact NCP before the submitting their proposal.**