



FLAG-ERA

# Joint Transnational Call 2021

for research projects in synergy with the two FET Flagships

## Graphene Flagship & Human Brain Project

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### Call Announcement

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**Deadline: 19 April 2021, 17:00 CET**

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Documents and procedures: <http://www.flagera.eu>

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Indicative budget: **10 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<sup>1</sup>. 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 during preparation of the proposals. 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.

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<sup>2</sup>). 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,. 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 innovation.

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.

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<sup>1</sup> <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/>.

<sup>2</sup> [http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/annexes/h2020-wp1415-annex-g-trl\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf)

## 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.

Country		Funding agency	GRA-BR	GRA-ARI	HBP	Foreseen Budget (€)
BE	Belgium	FNRS	Yes	No	Yes	400 k
BE	Belgium	FWO	Yes	Yes	Yes	700 k
BG	Bulgaria	BNSF	Yes	Yes	Yes	230 k
DE	Germany	DFG	Yes	No	No	2000 k
ES	Spain	AEI	Yes	Yes	Yes	500 k
ES	Spain (Asturias)	IDEPA	Yes	Yes	No	200 k
ES	Spain	ISCI	No	No	Yes	250k
FR	France	ANR	Yes	Yes	Yes	2000 k
HU	Hungary	NKFIH	Yes	Yes	Yes	600 k
IL	Israël	Innovation Authority	Yes	Yes	Yes	300 k
LT	Lithuania	LMT	Yes	Yes	Yes	300 k
LV	Latvia	VIAA	Yes	Yes	Yes	420 k
NL	Netherlands	ZonMW / NWO	No	No	Yes	250 k
RO	Romania	UEFISCDI	No	Yes	Yes	500 k
SE	Sweden	VR	Yes	No	No	420 k
SI	Slovenia	MIZS	Yes	Yes	Yes	Gra 420 k / HBP 210 k
SK	Slovakia	SAS	Yes	Yes	Yes	240 k
TR	Turkey	TUBITAK	Yes	Yes	Yes	400 k

### 3. Timeline

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

30 Nov 2020	Call announcement publication
19 Jan 2020	Information webinar
19 April 2020	Proposal submission deadline
End of October Nov 2021	Notification of accepted full proposals
Nov 2021 - Mar 2022	Project start

### 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.

Consortium including a partner from a participating widening country will be highly appreciated and will be taken into account during funding discussion

Consortium with gender balance will be highly appreciated and will be taken into account during funding discussion

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.

A one-step submission process applies, in which the applicants are invited to submit the full proposal.

## 5.1. Submission of proposals

A joint proposal document (maximum 30 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.**

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.

## 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. 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 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, if necessary in the case of ex-aequo proposals considering gender balanced consortia and participation of widening countries, 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.

## 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 2021 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 sub-call is sub-divided into two parts, one for basic research and one for applied research and innovation. Contact points of the Flagship are provided on the call web page.

<b>Graphene Basic Research JTC areas</b>
<ol style="list-style-type: none"> <li>1. Layered Magnetic Materials and Heterostructures</li> <li>2. Growth and device integration of two-dimensional amorphous materials</li> <li>3. Scalable growth &amp; device integration of UltraLow Power Spin-Orbit Memories based on GRMs</li> <li>4. Bacterial degradation of GRMs</li> <li>5. GRM based devices and circuits for neuromorphic computing</li> <li>6. Infrared+THz emission and detection with twisted GRMs</li> <li>7. Functionalized GRMs for advanced multivalent metal-ion batteries (MMIBs)</li> <li>8. Chemical sensing with GRMs</li> <li>9. MXene foams for capacitive deionization water desalination</li> <li>10. Rheological models for GRM suspensions and multiphase flows</li> </ol>
<b>Graphene Applied Research and Innovation JTC areas</b>
<ol style="list-style-type: none"> <li>1. Antiviral protection with GRM-based foams and coatings</li> <li>2. GRM-based Neural Interfaces for Bioelectronic Medicines</li> <li>3. GRM-based spectrometer for visible and infrared</li> <li>4. GRM-based, Ultra-Broadband THz-Transceiver technologies for 6G compliant wireless communication</li> <li>5. Tuning the hot-carrier lifetime in layered materials heterostructures for photoresponsivity enhancement</li> <li>6. GRMs for advanced metal-ion supercapacitors</li> <li>7. GRM-based electrodes for redox flow batteries</li> <li>8. GRM components for Self-charging and Self-powered Electronics</li> </ol>

## HBP Research and Innovation JTC areas

1. Studying genotype-phenotype relationships related to Brain Function
2. Tackling Psychiatric Diseases
3. Accelerating the diagnosis and the development of therapeutic approaches for rare diseases affecting the nervous system

## Graphene – Basic research JTC areas

### 1. Layered Magnetic Materials and Heterostructures

Synthesis and characterization of Layered Magnetic Materials and their heterostructures to assess and exploit their potential for future technologies. All aspects will be addressed. Development of new layered magnetic materials; understanding the nature of magnetic interactions (exchange, anisotropy, Dzyaloshinskii-Moriya, etc.) and how they determine different magnetic states; control of magnetic interactions and state (by doping, optically, via non-equilibrium); spatially dependent magnetic structures (skyrmions, domain walls, etc.); new techniques to probe magnetism in layered materials, proof-of-principle opto-electronic devices to achieve new functionalities

Keywords: Magnetic materials, Layered materials heterostructures, magnetism, devices

### 2. Growth and device integration of two-dimensional amorphous materials

Synthesis, characterization and device integration of new forms of scalable amorphous two-dimensional materials. The objective is to achieve the growth of two dimensional amorphous carbon and/or amorphous Boron Nitride compounds on various types of substrates and evaluate their performances for device applications. The projects should target growth and integration, as well as specific applications, such as permeation and diffusion barriers, encapsulation, flexible electronics, photonics, or magnetic recording devices and spintronics. The consortium should be able to realize a device prototype, demonstrating integration of the amorphous materials with metals and dielectric (using Atomic Layer Deposition), showing strong reduction of hysteresis when integrated in capacitors, or usefulness of the material as efficient low-dielectric interface.

Keywords: Growth of amorphous two-dimensional materials, (opto)electronics, spintronics, device fabrication

### 3. Scalable growth & device integration of UltraLow Power Spin-Orbit Memories based on GRMs

The target is to design, model, synthesize, characterize and operate low-energy consumption spin-orbit torque (SOT) memories made out of novel layered ferromagnets and large spin-orbit materials. The growth and device integration of high-quality multilayer layered materials heterostructures should be achieved using state-of-the-art techniques, such as MBE, allowing for in-situ fabrication of fully integrated SOT devices. Experimental characterization of SOTs in the corresponding stacks should be included, in combination with DFT simulations with quantum calculation of spin torque efficiency in realistic models.

Keywords: MBE growth, spin-orbit torque, layered magnets, device fabrication, modelling

#### 4. Bacterial degradation of GRMs

A fundamental aspect of GRM ecotoxicology concerns the assessment of possible ways for their degradation, when they are released into the aquatic environment or soil. Bacterial communities play a major role in the biogeochemical cycles of elements. 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 huge diversity, versatility and plasticity of bacteria make them the best candidates among all living organisms to study the degradation of GRMs and their composites. The best candidates are the bacteria of graphite ore fields and/or with intense extracellular oxidative activities.

Keywords: Bacteria, GRMs, degradation, remediation

#### 5. GRM based devices and circuits for neuromorphic computing

Neuromorphic computing is an emerging field with high potential for future ICT applications. This call will address the design and fabrication of devices and circuits based on GRMs for neuromorphic computing. This includes research on new devices for neuromorphic computing, such as like synaptic weights and integrated circuits for (analog) computing. The research activity should include theory and experiments.

Keywords: Neuromorphic computing, synaptic weights, integrated circuits.

#### 6. Infrared+THz emission and detection with twisted GRMs

Twisted GRMs (TBG) comprise GRM layered stacked on top of each other, with a relative rotation of the crystal axes quantified by the twist angle  $\theta$ . For twisted graphene of twist angles  $\sim 1^\circ$ , the system exhibits a pair of flat bands, and strong optical transitions emerge for the infrared and terahertz frequency range. This unique band structure, combined with bandgap and strong optical transitions, makes it highly promising for optical detection and emission. This calls aims to design and study infrared and terahertz devices based on GRMs, combinations of twisted multilayer GRM, or superlattices of GRMs. The projects should demonstrate devices with capabilities such as tuneable light emission, and enhanced photodetection, when compared to single layer GRMs.

Keywords: Twisted GRMs, Infrared, Terahertz, detection, emission

## 7. Functionalized GRMs for advanced multivalent metal-ion batteries (MMIBs)

Multivalent metal-ion (e.g.,  $Zn^{2+}$ ,  $Mg^{2+}$ , and  $Al^{3+}$ ) chemistry offers pathways to develop next-generation energy storage technologies with higher energy density, better safety and lower cost, as the corresponding metals can be used as multielectron-redox anodes. To date, the main challenge faced by MMIBs is the limited availability of cathode materials. It is desirable to develop high-performance cathode materials for accommodating MMIs, to be coupled with multivalent metal anodes for upscalable energy storage devices. This call targets the development of advanced functionalized GRMs as high energy density cathodes to improve the current performance of MMIBs.

Keywords: GRMs; multivalent metal-ion batteries, high energy density, High power density; long cycle life

## 8. Chemical sensing with GRMs

GRMs are promising candidates for fabrication of sensors with high sensitivity to targeted chemical analytes present in a desired medium, by providing a measurable signal output across the whole range of relevant analyte concentrations. However, to achieve high selectivity, critical given the enormous number of known molecular substances, the GRM structure needs to be chemically tailored with highly selective (supra)molecular receptors of the chosen analyte. In order to achieve the integration of functionalized GRMs in commercial products, technologies allowing thin-films and coatings processing at temperatures  $<200^{\circ}C$  are required, compatible with flexible polymeric substrates for portable devices, including Point-of-Care (POC).

Keywords: Sensors, functionalized GRMs, GRM hybrids

## 9. MXene foams for capacitive deionization water desalination

MXenes are emerging layered materials for different applications. MXene layers have high electrical conductivity, mechanical strength and volumetric capacitance in aqueous media. These properties make them ideal for capacitive deionization (CDI) electrodes for desalination. However, restacking of sheets can reduce the surface area and performance. Developing MXene foams could solve the restacking problem in CDI electrodes, thus providing new CDI electrodes with high efficiencies up to 80% salt removal.

Keywords: Water desalination, environmental application, MXene foams, capacitive deionization

## 10. Rheological models for GRM suspensions and multiphase flows

GRMs in liquid solutions play a key role in several fields, including large scale fabrication using liquid exfoliation, drop casting, ink-jet printing, etc. From an industrial point of view, models that can be included in engineering software for fluid dynamics simulations are necessary in order to design and improve fabrication, devices, composite materials etc. This call targets a joint theoretical and experimental development aiming at improving the knowledge of the rheology of GRM multiphase flows.

Keywords: GRM-multiphase flows, rheology, modelling and simulation

## Graphene – Applied research and innovation JTC areas

### 1. Antiviral protection with GRM-based foams and coatings

The current pandemic caused by SARS-CoV-2 poses the urgent need to devise personal protective equipment (PPE) technologies capable of acting as highly efficient barrier between the external environment and the human body. New types of performant PPEs need to be developed to prevent infection, not only by Covid-19, but also by a broader spectrum of present and future viruses. GRMs are promising candidates for the fabrication of functional PPEs, including disposable or washable masks and aprons. To achieve high performance of PPEs against viruses, the GRMs structure should be chemically tailored to promote virus adhesion and destroy their biological activity once adsorbed. In order to integrate functionalized GRM in disposable or washable and re-usable commercial products, technologies allowing processing GRMs into foams and coatings at low cost should emerge.

Keywords: Personal protective equipment, functionalized GRMs, coatings

### 2. GRM-based Neural Interfaces for Bioelectronic Medicines

The rapid advances in neurotechnologies for the detection and modulation of electrical signalling patterns in the nervous system has triggered a new class of treatments known as Bioelectronic Medicines. The aim is to develop miniaturised implantable devices able to decipher and modulate neural signalling patterns, achieving therapeutic effects, selectively targeting particular functions of specific organs. For this vision to be realized, significant technology advances are needed in terms of fully implantable systems capable of chronically recording and stimulating the nervous system. GRMs have already shown great potential as building blocks of neural interfaces, not only for recording, but also stimulating neural circuits. In order to move forward the technology, GRM neural interfaces have to integrate additional building blocks, while demonstrating the long-term safety and chronic functionality in relevant preclinical models. These building blocks include data transmission and analysis systems, closed-loop operation, integration with commercial electronics, to name a few. This calls targets the developed of GRM-based technologies to treat chronic diseases, for neuromodulation, and rehabilitation. These have to be designed and evaluated together with clinical organizations and industrial partners, with a realistic path towards clinical applications.

Keywords: Bioelectronics medicines, GRMs, chronic implants, closed-loop, neural signal processing

### 3. GRM-based spectrometer for visible and infrared

Spectrometers that combine visible and infrared light can enable many applications, such as food inspection, recycling, water monitoring, etc. The growth of the current spectrometer market is limited by the functionality and availability of low-cost broadband detectors. Broader spectral operation range and miniaturization of a spectrometer would dramatically increase the size of this market, as the system could be deployed at consumer/retail sites. This goal in this call is to develop, test and evaluate a prototype broadband, compact and high resolution spectrometer (of  $\sim 2\text{nm}$ ) covering simultaneously the visible and infrared ranges (at least 400-2000 nm) by employing GRM-based photodetectors. The technology should be validated by addressing at least one of the application areas and evaluate the

inspection capabilities with an end-user. The potential for near-future low-cost manufacturing is a key element and must be demonstrated as well benchmarking the technology.

Keywords: GRM-based Spectrometer, Photodetectors, Inspection

#### **4. GRM-based, Ultra-Broadband THz-Transceiver technologies for 6G compliant wireless communication**

Future 6G wireless networks will handle bit rates up to several 100Gbit/s operating at carrier frequencies  $\geq 1$  THz. Such networks will consist of small cells with limited coverage, coupled to a broad band optical backhauling link by e.g. seamless connection to an optical fibre infrastructure. Low costs, energy efficient operation, small form factor, and direct conversion from wireless THz- to optical-layer are key performance features of such transceivers. This call targets the realisation of GRM-based transceivers to enable seamless efficient conversion from THz to optical signals, as well as ultra-fast detection mechanisms to convert optical signals to THz.

Keywords: THz, 6G, GRMs

#### **5. Tuning the hot-carrier lifetime in layered materials heterostructures for photoresponsivity enhancement**

GRM-based photodetectors have potential in terms of high-bandwidth and low-cost production. Their responsivity is proportional to the carrier lifetime. The calls targets the tuning of the carrier lifetime in layered material-based heterostructures to maximize their photoresponsivity.

Keywords: Layered materials heterostructures, hot-carrier injection, hot-carrier lifetime, GRM based-photodetectors responsivity

#### **6. GRMs for advanced metal-ion supercapacitors**

Metal-ion capacitors (MICs) are energy storage devices that cover the gap between supercapacitors and batteries. MICs have higher energy density than supercapacitors, with high power and longer term cyclability. However, their energy density is still lower than lithium ion batteries. Thus, new strategies should be developed to increase the energy density. This call targets the development of GRMs as high energy density negative electrodes to improve the current performance of MICs.

Keywords: GRMs; High power; long cycling; electrochemical hybrid capacitors.

#### **7. GRM-based electrodes for redox flow batteries**

The fabrication of reliable and cost-effective electrodes with high catalytic activity towards vanadium redox reactions is crucial for the widespread dissemination of vanadium redox flow batteries (VRFBs). This call targets the development of hierarchical carbonaceous VRFB electrodes based on GRMs through solution deposition techniques combined with rapid (minute-timescale) physical gas plasma treatments. The GRM properties (including high conductivity, high surface with abundant catalytic sites, tuneable porosity and hydrophilicity), together with the use of scalable production and processing, should enable large-area ( $\geq 25 \text{ cm}^2$ ) GRM-based electrodes for VRFBs, targeting efficiency and rate capability superior to the state of the art, non-GRM based, technologies.

Keywords: Energy storage systems, vanadium redox flow batteries, GRMs, gas plasma treatments, solution deposition techniques

#### **8. GRM components for Self-charging and Self-powered Electronics**

A low-emission solution to power the increasing number of devices required for Big Data analysis is to make them sustainably self-powered and self-charging, through the development of efficient energy harvesters. A novel concept enabling high power conversion efficiency of mechanical energy exploits triboelectric nanogenerators (TEGs). GRMs have tuneable chemical and electronic properties, making them ideal candidates to enhance the triboelectrification charge density of insulating materials. This calls targets the combination of GRMs with solution processable TEGs fabrication, to prepare low cost, sustainable solutions for powering future electronics.

**Keywords:** Self-powered Electronics, Energy harvesters, GRMs, Triboelectric nanogenerators, Mechanical energy

## HBP Research and Innovation JTC areas

The projects should propose holistic approaches combining computer sciences and neurosciences to address at least one of the following aims:

While preparing the proposals, consortia are encouraged to contact EBRAINS High-Level Support Team (HLST) ([flag-era2021@ebrains.eu](mailto:flag-era2021@ebrains.eu)) if it is of their interest to explore whether the services developed by EBRAINS (<https://ebrains.eu/>) offer potentially valuable solutions to fulfil their aim. For relevant EBRAINS services related to this call for proposals please see below.

### 1. Studying genotype-phenotype relationships related to Brain Function

Research projects aiming to establish the relationship between genetics and phenotype are essential to understand the causality relationship between identified mutations and brain dysfunction or functional compensation leading to resilience.

Research projects dealing with anatomical (micro, meso, macroscales, molecular and cellular type maps) as well as functional phenotypes (behavior, functional connectome, etc) in animal models as well as in large human cohorts are eligible. The projects are encouraged to address non-genetic determinants of variability among individuals.

### 2. Accelerating the diagnosis and the development of therapeutic approaches for rare diseases affecting the nervous system

Research projects using holistic approaches and computational tools to develop, accelerate or improve diagnostic and therapeutic approaches for rare diseases<sup>3</sup> affecting the nervous system.

Clinical and preclinical proposals making use of available medical or preclinical datasets for analysis, modelling or simulation studies are eligible.

### 3. Tackling Psychiatric Diseases

Research projects developing diagnostic, patients stratification or treatment strategies for Psychiatric Diseases by combining diverse types of clinical data i.e. neuroimaging, molecular data, clinical records

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<sup>3</sup> According to EU a disease affecting 1 in 2000 people.



and/or questionnaires as well as data covering social aspects of these diseases including subjective well-being are eligible.

## Relevant EBRAINS services in the context of JTC 2021 FLAG-ERA

The projects falling within the scientific scope of this call for proposals are invited to consider using the following EBRAINS resources (<https://ebrains.eu>):

### *The Data and Knowledge services for finding and publishing FAIR data*

The Data and Knowledge services (<https://ebrains.eu/services/data-knowledge>) provide services for sharing and publishing of research data from human and rodent brains, and facilitate research, e.g., on case-control studies, cohort studies, as well as on models of disease mechanisms. Storage and computing resources are available through the FENIX high performance computing infrastructure. For all projects in the present call, EBRAINS offers to publish FAIR data through the EBRAINS Knowledge Graph (<https://kg.ebrains.eu/search>), and to couple FAIR data with journal publications (<https://ebrains.eu/services/data-knowledge/share-data>), with FENIX high performance computing infrastructure (<https://fenix-ri.eu/about-fenix>), and the other EBRAINS services, (e.g., in the area of brain simulation, neuromorphic computing, and neuro-robotics, <https://ebrains.eu>).

### *The Brain Atlas services for integrating and combining data in atlases*

The Brain Atlas services (<https://ebrains.eu/services/atlasses/>) offers tools and resources for integrating multiple reference spaces and maps of the human, rodent and mouse brain into a common framework, and for exploring and analyzing data in the atlases. For all projects in the present call, tools are available for registration of new data to the atlases, and for exploring and analyzing data through the interactive Atlas Viewer and a range of analytical tools.

### *The Medical Informatics Platform (MIP)*

The Medical Informatics Platform, MIP (<https://mip.ebrains.eu/>) is currently installed in 30 centers, including 28 hospitals, with 8 more hospitals having signed an installation agreement. Use-cases have been implemented in the field of dementia, traumatic brain injury, mental health and epilepsy. More than 20.000 patients' datasets have been processed in the MIPs, including more than 10.000 in the MIP Federation. Importantly, a significant number of MIP equipped hospitals are part of the European Reference Network (ERN) EpiCare, with which HBP has signed an official partnership. Discussions are ongoing regarding a similar partnership with ERN RND for rare neurological diseases. EpiCare and ERN-RND are the two brain diseases oriented ERNs.

### *Costs for using EBRAINS services.*

**The use of EBRAINS services will be free for the FLAG-ERA projects** (with a few exceptions, see below). In particular, the Data and Knowledge service will give priority to requests for data curation at no cost from FLAG-ERA projects. Projects are encouraged 1) to follow one of the paths for combined journal publication and publication of data on EBRAINS (<https://ebrains.eu/services/data-knowledge/share-data>) and to describe in their proposal which path they are planning to follow, and 2) to use the "Curation request form" on EBRAINS Share Data to deliver information concerning the curation need.

For projects that will require development of significant new functionalities that go beyond present planning of EBRAINS services, applicants are advised to describe their needs and request information through the service email for the FLAG-ERA call: [flag-era2021@ebrains.eu](mailto:flag-era2021@ebrains.eu) .

For projects with high demands for high-performance computing or large data storage, conditions for access can be found at <https://fenix-ri.eu/access>. More information can be requested through the service email for the FLAG-ERA call: [flag-era2021@ebrains.eu](mailto:flag-era2021@ebrains.eu)

## ANNEX II – National Requirements

### BE – Belgium – F.R.S.-FNRS

<b>Country/Region</b>	Belgium, French-speaking Community
<b>Funding organisation</b>	Fund for Scientific Research – FNRS (F.R.S.-FNRS)
<b>National contact person</b>	Florence Quist, +32 2 504 9351, <a href="mailto:florence.quist@frs-fnrs.be">florence.quist@frs-fnrs.be</a> Joël Groeneveld, +32 2 504 9270, <a href="mailto:joel.groeneveld@frs-fnrs.be">joel.groeneveld@frs-fnrs.be</a>
<b>Funding commitment</b>	€ 200.000 per Flagship (€ 400.000 in total)
<b>Anticipated number of fundable research groups</b>	2 (in total)
<b>Eligibility of project duration</b>	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. <a href="#">PINT-MULTI regulations</a> ).
<b>Maximum funding per awarded project / partner</b>	The maximum amount of requested funding per project is € 200.000.
<b>Eligibility of a partner as a beneficiary institution</b>	All eligibility rules and criteria can be found in the <a href="#">PINT-MULTI regulations</a> .
<b>Eligibility of costs, types and their caps</b>	All eligibility rules and criteria can be found in the <a href="#">PINT-MULTI regulations</a> .
<b>Submission of the full proposal at the national level</b>	Applicants to F.R.S.-FNRS funding must provide basic administrative data by submitting an administrative application on <a href="#">e-space</a> within 5 working days after the general deadline of FLAG-ERA to be eligible. 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.
<b>Submission of financial and scientific reports at the national level</b>	Financial reporting to the F.R.S.-FNRS: yearly by the finance department of the institution Scientific reporting: the joint FLAG-ERA reports replace the reporting for F.R.S.-FNRS.
<b>Information available at</b>	<a href="http://www.ncp.fnrs.be/index.php/appels/era-nets">http://www.ncp.fnrs.be/index.php/appels/era-nets</a>
<b>OTHER</b>	Please note that F.R.S.-FNRS does not allow multiple funding; the principal investigator should clearly state how the proposed project differs from other granted projects.

**BE – Belgium – FWO**

<b>Country/Region</b>	Belgium
<b>Funding organisation</b>	Fonds Wetenschappelijk Onderzoek – Vlaanderen (FWO)
<b>National contact person</b>	<p>Dr Alain Deleener (Strategic Basic Research)          Science Policy Advisor Strategic Research Programmes          Tel. +32 2 550 15 95</p> <p>Toon Monbaliu (Fundamental research)          Advisor Research Affairs          Tel. +32 2 550 15 70</p> <p>E-mail: <a href="mailto:eranet@fwo.be">eranet@fwo.be</a></p>
<b>Funding commitment</b>	700.000 €
<b>Anticipated number of fundable research groups</b>	2-3
<b>Eligibility of project duration</b>	Up to 36 months
<b>Maximum funding per awarded project / partner</b>	350.000 € ( <b>overhead included</b> )
<b>Eligibility of a partner as a beneficiary institution</b>	<p>The FWO participates with two of its project funding channels:          Fundamental research (FO)          Strategic Basic Research (SBO)</p> <p>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:</p> <p><b>FO projects:</b>          Only lowest TRL<sup>4</sup> (TRL 1) will be eligible.</p> <p><b>SBO projects:</b>          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.</p>

<sup>4</sup> Technology Readiness level: <https://www.ttopstart.com/news/technology-readiness-levels-a-new-dimension-in-horizon-2020>

	<p>Consequently, researchers have to make sure they comply with the eligibility criteria of the funding channel they select.</p> <p>For 'FO' the 'Research Project' regulations apply:  <a href="https://www.fwo.be/en/fellowships-funding/research-projects/research-project/">https://www.fwo.be/en/fellowships-funding/research-projects/research-project/</a></p> <p>For 'SBO' the 'Regulations Strategic Basic Research' apply:  <a href="https://www.fwo.be/en/fellowships-funding/research-projects/sbo-projects/regulations-strategic-basic-research-(sbo)/">https://www.fwo.be/en/fellowships-funding/research-projects/sbo-projects/regulations-strategic-basic-research-(sbo)/</a></p> <p>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.</p> <p><b>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.</b></p>
<p><b>Eligibility of costs, types and their caps</b></p>	<p>The maximum amount that can be requested per project is 350.000 €, <b>overhead included.</b></p> <p><b>For FO projects:</b></p> <p>Funding money can be used for staff (temporary; permanent staff cannot be appointed on FWO budget), consumables (incl. travelling) and equipment.</p> <p>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.</p> <p><b>For SBO projects:</b></p> <p>The specific SBO funding regulations apply:  <a href="https://www.fwo.be/media/652551/Cost-model-SBO-and-TBM-2017.pdf">https://www.fwo.be/media/652551/Cost-model-SBO-and-TBM-2017.pdf</a></p>
<p><b>Submission of the full proposal at the national level</b></p>	<p>No</p>
<p><b>Submission of financial and scientific reports at the national level</b></p>	<p>Financial reporting: Yes</p> <p>Scientific reporting: depends on the funding channel</p> <p><b>Fundamental Research (FO):</b> Reporting at ERA-NET level only;</p> <p><b>Strategic Basic Research (SBO):</b> 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.</p>
<p><b>Information available at</b></p>	<p>ERA-NET general:</p>

	<p><a href="https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/">https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/</a></p> <p><a href="https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/oproepen/">https://www.fwo.be/nl/mandaten-financiering/europese-programmas/era-net/oproepen/</a></p> <p>FO regulations:</p> <p><a href="https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/onderzoeksproject/">https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/onderzoeksproject/</a></p> <p>SBO regulations:</p> <p><a href="https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/sbo-projecten/">https://www.fwo.be/nl/mandaten-financiering/onderzoeksprojecten/sbo-projecten/</a></p>
<p><b>OTHER</b></p>	<p>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.</p> <p>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.</p>

**BG – Bulgaria – BNSF**

<b>Country/Region</b>	Bulgaria
<b>Funding organisation</b>	Bulgarian National Science Fund (BNSF)
<b>National contact person</b>	Milena Aleksandrova Phone: +359 884 171 363 e-mail: <a href="mailto:milena.aleksandrova@mon.bg">milena.aleksandrova@mon.bg</a>
<b>Funding commitment</b>	Up to € 100,000 Up to € 50,000 per project
<b>Anticipated number of fundable research groups</b>	2 or 3 projects tentatively envisaged to be funded
<b>Eligibility of project duration</b>	36 months
<b>Maximum funding per awarded project / partner</b>	Up to € 50,000 per project 2 projects tentatively envisaged to be funded
<b>Eligibility of a partner as a beneficiary institution</b>	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. <a href="http://lll.mon.bg/uploaded_files/zkn_visseto_obr_01.03.2016_EN.pdf">http://lll.mon.bg/uploaded_files/zkn_visseto_obr_01.03.2016_EN.pdf</a>
<b>Eligibility of costs, types and their caps</b>	Eligible costs are specified in the "National requirements and eligibility conditions" of the Bulgarian National Science Fund available at: <a href="https://www.fni.bg/sites/default/files/competition/12_2016/ERA/BNSF_International_Programs-2017_ENG.pdf">https://www.fni.bg/sites/default/files/competition/12_2016/ERA/BNSF_International_Programs-2017_ENG.pdf</a>
<b>Submission of the proposal at the national level</b>	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: <a href="https://www.fni.bg/?q=node/578">https://www.fni.bg/?q=node/578</a>  These forms have to be sent back in person to BNSF Registry Office before the deadline of the pre-proposal submission.
<b>Submission of financial and scientific reports at the national level</b>	Information available at: <a href="https://www.fni.bg/?q=node/578">https://www.fni.bg/?q=node/578</a>
<b>Information available at</b>	<a href="https://www.fni.bg/">https://www.fni.bg/</a>
<b>OTHER</b>	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

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



## ES – Spain – AEI

<b>Country/Region</b>	Spain
<b>Funding organisation</b>	Agencia Estatal de Investigación (AEI)
<b>National contact person</b>	<p>Administrative and technical issues:            Watse Castelein; +34 9160 38876; <a href="mailto:era-ict@aei.gob.es">era-ict@aei.gob.es</a></p> <p>Scientific issues:            Dr. Carles Cané (Graphene); <a href="mailto:era-ict@aei.gob.es">era-ict@aei.gob.es</a>            Dr. Jesus M. Sanz (HBP); <a href="mailto:era-ict@aei.gob.es">era-ict@aei.gob.es</a>            Representative: Beatriz Gómez Miguel; <a href="mailto:beatriz.gomez@aei.gob.es">beatriz.gomez@aei.gob.es</a></p>
<b>Funding commitment</b>	500.000 € (indicative for the three topics)
<b>Anticipated number of fundable research groups</b>	3-4
<b>Eligibility of project duration</b>	Up to 3 years
<b>Maximum funding per awarded project / partner</b>	<p>The following funding limits are considered eligibility criteria. Proposals not respecting these limits could be declared non eligible.</p> <p>IMPORTANT: a maximum of two Spanish Partners requesting funding to the AEI in the same Proposal are allowed.</p> <p>Maximum amount <u>per Proposal</u> (overheads excluded):</p> <ul style="list-style-type: none"> <li>For all Spanish Partners, if none of them is acting as Consortium Coordinator: € 150.000</li> </ul> <p>If the Consortium is led by a Spanish Coordinator:</p> <ul style="list-style-type: none"> <li>if there is only one Spanish Partner in the proposal acting as Coordinator: € 200.000</li> <li>if there is one Spanish Partner in addition to the Spanish Coordinator: € 250.0000</li> </ul> <p>These amounts refer to 3 years projects. In case of shorter projects, the amount will be adjusted accordingly</p> <p>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).</p> <p>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.</p>
<b>Eligibility of a partner as a beneficiary institution</b>	<p>The <b>eligible entities</b> for AEI funding are:</p> <p>Non-profit research organizations (such as universities, public research institutions, technological centres and other private non-profit institutions performing RDI activities in Spain), as per PCI call (or equivalent).</p> <p><u>Important:</u> Hospitals, primary health care or public health settings of the Spanish National Health System (SNS), accredited Health Research</p>

	<p>Institutes and CIBER or CIBERNED eligible for ISCIII according to its annex will not be eligible for the AEI funding. Please read the ISCIII Annex.</p> <p>ISCIII and AEI may exchange each other applicant (s) in order to maximize the available funds meeting the respective eligibility rules.</p> <p>Although private enterprises are not funded by the AEI, the Spanish industrial sector is welcome to participate in the transnational consortia using their own funds or obtaining funds from the CDTI or other innovation and technological development funding agencies.</p> <p><b>Mandatory</b></p> <p>The <u>Principal Investigators</u> applying for funding to the AEI must have experience as investigators in projects funded by the Plan Estatal I+D+i 2013-2016, the Plan Estatal I+D+i 2017-2020, ERC Grants, European Framework Programmes or other relevant international programmes.</p> <p><b>Incompatibilities</b></p> <p>(these must be taken into account when participating in different ERA-Nets or other international initiatives):</p> <p><u>Principal Investigators</u> will not be eligible for funding if they apply in more than one proposal of this transnational joint call, in more than one proposal in the same PCI call (or equivalent) and in PCI calls (or equivalent) of consecutive years.</p> <p><u>Principal Investigators</u> must remain unchanged between the proposal of this transnational joint call and the national PCI call (or equivalent).</p> <p>The AEI will avoid double funding and will not grant projects or parts of projects already funded through other national or EU calls.</p>
<p><b>Eligibility of costs, types and their caps</b></p>	<p><b>Eligible costs:</b></p> <p>Personnel costs for <b>temporary employment contracts</b></p> <p>Direct costs (VAT included) such as current costs, small scientific equipment, disposable materials, travelling expenses, coordination costs, and other costs that can be justified as necessary to carry out the proposed activities.</p>
<p><b>Submission of the pre-proposal at the national level</b></p>	<p>No</p>
<p><b>Submission of the full proposal at the national level</b></p>	<p><b><i>ONLY FOR SELECTED PROJECTS</i></b></p> <p><i>Instrument for funding the Spanish groups</i></p> <p>The instrument for funding the Spanish groups is being redesigned for simplification.</p> <p>The current instrument, the Spanish call on RDI projects “International Joint programming (PCI)”, could be replaced in 2021.</p> <p>Nevertheless, applicants are encouraged to consult the <a href="#">PCI 2020 call</a>, since the requirements will be similar.</p> <p><i>Funding Programme:</i></p> <p>The framework for this funding action is the Plan Estatal de Investigación Científica, Técnica e Innovación 2021-2023. On a national level, the Call</p>

	<p>will be managed by the <a href="#">Subdivisión de Programas Científico-Técnicos Transversales, Fortalecimiento y Excelencia</a> of the AEI.</p> <p><i>Data Protection:</i></p> <p>By submitting a grant application to the AEI, the applicants consent to communication of the data contained in the application to other public administrations, with the aim of further processing of the data for historical, statistical or scientific purposes, within the framework of the Organic Law 3/2018, of December 5, on Personal Data Protection and Guarantee of Digital Rights.</p>
<p><b>Submission of financial and scientific reports at the national level</b></p>	<p>YES</p>
<p><b>Information available at</b></p>	<p>Beneficiaries are advised to read the call <a href="#">PCI 2020 call</a></p>
<p><b>OTHER</b></p>	<p>Any publication or dissemination activity resulting from the granted projects must acknowledge funding by the Agencia Estatal de Investigación: “Project (reference nº XX) funded by the Agencia Estatal de Investigación through the PCI XX call (or its equivalent)”.</p>

## ES – Spain – IDEPA

<b>Country/Region</b>	Spain
<b>Funding organisation</b>	Instituto de Desarrollo Económico del Principado de Asturias (IDEPA)
<b>National contact person</b>	Ms Ana Elena Fernández Monzón anae@idepa.es
<b>Funding commitment</b>	200.000€
<b>Anticipated number of fundable research groups</b>	2-3
<b>Eligibility of project duration</b>	Suggested: 24 month; 36 month possible
<b>Maximum funding per awarded project / partner</b>	200.000€ per international proposal (expected 100.000€ per regional applicant)
<b>Eligibility of a partner as a beneficiary institution</b>	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.
<b>Eligibility of costs, types and their caps</b>	<p><b>Eligible costs:</b></p> <p>(a) Personnel costs (experienced researchers and technicians);</p> <p>(b) Depreciation costs of instruments and equipment corresponding to the life of the research project, calculated on the basis of good accounting practices</p> <p>(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;</p> <p>(d) Costs of materials, supplies and similar products directly linked to the research activity;</p> <p>(e) Travelling costs incurred directly as a result of the research project;</p> <p>(f) Cost of the audit aimed to certificate the correct execution of the project.</p> <p><b>Regional applicants are required to a minimum budget of:</b></p> <p>150.000€</p>
<b>Submission of the full proposal at the national level</b>	Applicants from Asturias must follow the procedure that will be established in the regional call for FLAG-ERA III proposals of the funding programme: IDEPA grants for international R&D projects in Asturias under ERA.net Schemes
<b>Submission of financial and scientific reports at the national level</b>	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
<b>Information available at</b>	<a href="https://www.idepa.es/detalle-ayuda/-/asset_publisher/EorU9gEBOv3g/content/eranet-flag-era-iii-graphene">https://www.idepa.es/detalle-ayuda/-/asset_publisher/EorU9gEBOv3g/content/eranet-flag-era-iii-graphene</a>

<b>OTHER</b>	
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## ES – Spain – ISCIII

<b>Country/Region</b>	Spain
<b>Funding organisation</b>	National Institute of Health Carlos III (ISCIII), <a href="http://www.isciii.es">www.isciii.es</a>
<b>National contact person</b>	Clara Martín Núñez, (+34) 91 822 2567, <a href="mailto:c.martin@isciii.es">c.martin@isciii.es</a>
<b>Funding commitment</b>	<b>250 k€ for the “HBP – Basic and applied research” sub-call.</b> ISCIII does not participate in the “Graphene – Basic Research” and “Graphene – Applied Research and Innovation” sub-calls.
<b>Anticipated number of fundable research groups</b>	1-2
<b>Eligibility of project duration</b>	3 years
<b>Maximum funding per awarded project / partner</b>	Maximum funding per awarded Spanish project partner: <ul style="list-style-type: none"> <li>• <b>Up to 175,000 € per partner (overheads included).</b></li> <li>• <b>Up to 250,000 € per coordinator (overheads included).</b></li> </ul>
<b>Eligibility of a partner as a beneficiary institution</b>	<ul style="list-style-type: none"> <li>• <b>Hospitals, primary health care or public health administration of the Spanish National Health System (SNS).</b> These institutions may manage research via a foundation regulated in accordance to the Spanish Act 50/2002, of December 26<sup>th</sup> (a copy of the foundation’s statutes may be submitted).</li> <li>• <b>Accredited Health Research Institutes (Institutos de Investigación Sanitaria acreditados, IIS)</b> 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). List of IIS can be found <a href="#">here</a>.</li> <li>• <b>CIBER or CIBERNED.</b> Team members applying to the call must be from at least two groups belonging to CIBER in two different home institutions and one of these two should be a Hospital, primary health care or public health administration of the Spanish National Health System (SNS) or Accredited Health Research Institutes (Institutos de Investigación Sanitaria acreditados, IIS). Please contact Cristina Rodríguez (<a href="mailto:cristina.rodriguez@ciberisciii.es">cristina.rodriguez@ciberisciii.es</a>) for more information related to CIBER’s eligibility and José de Arriba (<a href="mailto:jdearriba@cbernede.es">jdearriba@cbernede.es</a>) for CIBERNED’s.</li> <li>• <b>Academia or Other Research Centers.</b> These applicants are encouraged to apply to AEI. These entities can <b>only</b> participate if they apply together with Hospitals, primary health care or public health settings of the Spanish National Health System (SNS), or Accredited Health Research Institutes (Institutos de Investigación Sanitaria acreditados, IIS) in the same proposal. <b>It is not allowed to apply independently, thus there must be two beneficiary Spanish institutions requesting funding to ISCIII in the same proposal.</b></li> </ul> <p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>Applicants from ISCIII are eligible. Eligibility criteria from AESI 2021 apply.</li> </ol>

	<ul style="list-style-type: none"> <li>ii. Durations of national grants are up to 3 years.</li> <li>iii. Same institution cannot participate with more than one partner in the same project proposal.</li> <li>iv. Only one PI per beneficiary institution may be funded within the same proposal.</li> <li>v. <b>Researchers with ongoing FLAG-ERA projects in 2022 cannot apply to the current call unless the alive project or the new application is as Coordinator.</b></li> <li>vi. There is no other incompatibility with AES call 2021.</li> <li>vii. SMEs and other private companies are encouraged to participate at their own cost, as subcontractors or funded by other sources.</li> </ul>
<b>Eligibility of costs</b>	<ul style="list-style-type: none"> <li>• Personnel costs for temporary employment contracts (scholarships are not eligible) according to AES 2021.</li> <li>• Current costs, small scientific equipment, disposable materials, travelling expenses and other costs that can be justified as necessary to carry out the proposed activities.</li> <li>• Overheads, according to AES 2021.</li> </ul>
<b>Eligibility of PI and team members</b>	<ul style="list-style-type: none"> <li>• Principal Investigators (PI) can only participate in one project proposal in this call.</li> <li>• The Principal Investigator (PI) and all members of the research group must belong to the eligible institution or be affiliated to CIBER, CIBERNED or an IIS.</li> </ul> <p><u>Excluded personnel as Principal Investigator (PI):</u></p> <ul style="list-style-type: none"> <li>• Those undergoing a postgraduate training in Health Specialization (MIR, FIR, QIR, BIR, PIR).</li> <li>• Those undergoing research training (e.g. PhD students, or “Río Hortega” contracts).</li> <li>• Researchers contracted by a RETIC.</li> <li>• Those undergoing postdoctoral training (e.g. “Sara Borrell” or “Juan de la Cierva” contracts).</li> </ul>
<b>National phase</b>	<ul style="list-style-type: none"> <li>• National applications will be required by ISCIII. Spanish Applicants should periodically check in the web page of ISCIII if they are qualified. ISCIII may not send invitations to the mandatory national phase.</li> <li>• Double funding of the same concept is not allowed.</li> <li>• ISCIII and AEI may exchange applicants between each other in order to maximize the available funds meeting the respective eligibility rules.</li> </ul> <p>Due to administrative and legal regulations, the National Institute of Health Carlos III declares the end of September 2021 as national deadline for the decision on fundable project consortia which include Spanish partners to be funded by ISCIII. Any concerned applicant in a proposal for which no final decision has been made by the deadline, could be declared not fundable by ISCIII.</p>
<b>Requirements on data and repositories</b>	<p>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</p>

	<p>scientific data at the <a href="#">“ELIXIR Core Data Resources”</a> or if non-European repositories or data bases they must be certified by ELIXIR or the US National Center for Biotechnology Information (NCBI).</p> <p>ISCIII may no fund project that requires the construction of new repositories without decommissioning plans or ensured sustainability after the project’s end.</p>
<p><b>Requirements for clinical studies</b></p>	<p>Spanish groups participating in a proposal performing a clinical study are encouraged to contact and include as members of the team personnel from the Platform of Clinical Research Unit (Unidades de Investigación Clínica y Ensayos Clínicos - UICEC) of their institutions. Currently, it is under assessment the ISCIII’s platform that will support Non-Commercial Clinical Research over the period 2021-23, and that it is expected to be the scientific node of the EU Clinical Trials Network (ECRIN-ERIC). Once the call is awarded, we will update the relevant contact information within these guidelines.</p>
<p><b>Acknowledgements</b></p>	<p>Any publication resulting from the granted projects must acknowledge <i>“Award no. XX by ISCIII thorough AES 2021 and within the FLAG-ERA JTC 2021 framework”</i> even after the end of the project.</p>



## FR – France – ANR

<b>Country/Region</b>	France
<b>Funding organisation</b>	Agence Nationale de la Recherche (ANR)
<b>National contact person</b>	Marie-Alexandra Neouze, <a href="mailto:marie-alexandra.neouze@anr.fr">marie-alexandra.neouze@anr.fr</a> , +33 1 73 54 8 3 08
<b>Funding commitment</b>	2 000 k€ in total
<b>Anticipated number of fundable research groups</b>	8-10
<b>Eligibility of project duration</b>	No additional constraint in addition to the transnational level
<b>Maximum funding per awarded project / partner</b>	No predefined maximum. Requested funding should be justified with respect to the project work plan.
<b>Eligibility of a partner as a beneficiary institution</b>	The general rules of ANR apply (cf. link below). In particular, both public research institutions and enterprises can apply.
<b>Eligibility of costs, types and their caps</b>	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.
<b>Submission of the full proposal at the national level</b>	No
<b>Submission of financial and scientific reports at the national level</b>	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.
<b>Information available at</b>	<a href="http://www.anr.fr/AAPProjetsOuverts">http://www.anr.fr/AAPProjetsOuverts</a>
<b>OTHER</b>	Applicants from France must read the specific appendix available at the above-mentioned link.

**HU – Hungary – NKFIH**

<b>Country/Region</b>	Hungary
<b>Funding organisation</b>	Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal (NKFI Hivatal) National Research, Development and Innovation Office (NRDI Office)
<b>National contact person</b>	Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal Kéthly Anna tér 1, Budapest, H-1077, Hungary <a href="mailto:Edina.Nemeth@nkfi.gov.hu">Edina.Nemeth@nkfi.gov.hu</a> , +36-70-221-0387 National Contact Point for Horizon 2020 ICT & FET
<b>Funding commitment</b>	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)
<b>Anticipated number of fundable research groups</b>	2 participants per Flagship.
<b>Eligibility of project duration</b>	Up to 3 years
<b>Maximum funding per awarded project / partner</b>	150.000 € per partner
<b>Eligibility of a partner as a beneficiary institution</b>	Eligible applicants from Hungary are entities falling under any of the following GFO codes: <ul style="list-style-type: none"> <li>• enterprise with legal entity (GFO code: 11X)</li> <li>• non-profit organisation with legal entity (GFO code: 5XX)</li> <li>• budgetary units and entities (eg. higher education institutions, municipalities;) (GFO code: 3XX)</li> <li>• enterprise with a registered office in the European Economic Area and a branch in Hungary (GFO: 226).</li> </ul>
<b>Eligibility of costs, types and their caps</b>	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 2019-2.1.7-ERA-NET national call are applicable)
<b>Submission of the full proposal at the national level</b>	Following the international selection of the projects to be funded, a proposal should be formally submitted to NKFI Hivatal through its electronic proposal system (EUPR). Proposers will receive guidance on the submission by NKFI Hivatal.
<b>Submission of financial and scientific reports at the national level</b>	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).
<b>Information available at</b>	<a href="http://www.nkfi.gov.hu">http://www.nkfi.gov.hu</a>
<b>OTHER</b>	

## IL – Israel – InnovationAuth / ISERD

Country/Region	Israel			
Funding organisation	The National Technological Innovation Authority (InnovationAuth)			
National contact person	Danny Seker, Dan@iserd.org.il, +972-3-5118121 Tzlil Ribak, <a href="mailto:Tzlil.ribak@iserd.org.il">Tzlil.ribak@iserd.org.il</a> , +972-3-5118182			
Funding commitment	300 k€ in total			
Anticipated number of fundable research groups	2-4			
Eligibility of project duration	As may be decided by the Consortia, subject to the rules of the “Procedure for Financing Israeli Partners by the Innovation Authority under Sub-Programs for the European Framework Program” and the selected InnovationAuth benefit track (benefit tracks details below) (the "InnovationAuth Rules")			
Maximum funding per awarded project / partner	Type of organization	Funding % of eligible costs	Maximum Financial Support	Additional information
	SME	according to the InnovationAuth Rules	300K Euro	
	Large enterprise		300K Euro	
	University		300K Euro	
Eligibility of a partner as a beneficiary institution	The application and eligibility are subject to the InnovationAuth Rules. Following entities are eligible to apply: -Industrial corporations with R&D capabilities -Research Organizations/Academy			
Eligibility of costs, types and their caps	Funding will be provided according to the rules of the “Procedure for Financing Israeli Partners by the Innovation Authority under Sub-Programs for the European Framework Program” and the selected InnovationAuth benefit track: <ul style="list-style-type: none"> <li>• Benefit Track 1 - R&amp;D Foundation: A project of an Israeli corporation with self R&amp;D capabilities - up to 50% of the approved budget;</li> <li>• Benefit Track 5 – Sub Track Academic Knowledge Direction: A research project of an Israeli research organization / academy, that was approved based on track rules - up to 90% of the approved budget</li> <li>• Benefit Track 5 – Sub Track Knowledge Commercialization: An R&amp;D project of an Israeli Corporation that involves a technology transfer from research organization/s to Israeli Corporation – up to 60% of the approved budget.</li> </ul>			

Submission of the proposal at the national level	The InnovationAuth requires a national application, to be submitted in parallel to the international proposal stage. Israeli applicants may contact ISERD (cf. contact information above) before proposal submission for the purpose of checking national funding terms and conditions.
Submission of financial and scientific reports at the national level	The InnovationAuth Rules apply.
Information available at	InnovationAuth website ( <a href="https://innovationisrael.org.il/en/">https://innovationisrael.org.il/en/</a> )> Search for FLAG-ERA
OTHER	

**LT – Lithuania – LMT**

<b>Country/Region</b>	Lithuania
<b>Funding organisation</b>	Research council of Lithuania (LMT)
<b>National contact person</b>	Dr. Saulius Marcinkonis, tel +370 676 17256, saulius.marcinkonis@lmt.lt Research Council of Lithuania, Gedimino pr. 3, Vilnius, Lithuania
<b>Funding commitment</b>	€ 150.000 per Flagship (€ 300.000 in total)
<b>Anticipated number of fundable research groups</b>	2 (in total)
<b>Eligibility of project duration</b>	Up to three years
<b>Maximum funding per awarded project / partner</b>	Up to € 100.000 per project (for project partner) or up to € 150.000 per project (for project coordinator)
<b>Eligibility of a partner as a beneficiary institution</b>	<p><a href="#">The General Rules of the Research Council of Lithuania for the Competitive Funding of Research and Dissemination Projects</a> apply:</p> <p>Lithuanian higher education and research institution (which is listed in the Register of Ministry of Education and Science of Republic of Lithuania);</p> <p>SME (only in collaboration with Lithuanian higher education and research institution);</p> <p>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);</p> <p>A person, acting as a PL, PI or a core group member can participate only in one proposal per Call.</p> <p>The workload of the core members of project team must be at least 20 hours multiplied by the duration of the project in months.</p>
<b>Eligibility of costs, types and their caps</b>	<p>National funding will be provided according to the General Rules of the Research Council of Lithuania for the competitive funding of the Research and Dissemination Projects.</p> <p>Funding rates are 100% of eligible costs.</p> <p>Eligible direct costs:</p> <ul style="list-style-type: none"> <li>• Personnel</li> <li>• Subcontracting</li> <li>• Consumables</li> <li>• Travel and Subsistence</li> <li>• Equipment</li> <li>• Other</li> </ul> <p>Overheads:</p> <ul style="list-style-type: none"> <li>• Up to 30% of Personnel and Subcontracting costs.</li> </ul>
<b>Submission of the full proposal at the national level</b>	NO
<b>Submission of financial and scientific reports at the national level</b>	Financial and scientific (mid- term and final) reporting at the national level is required, using the usual LMT procedures.
<b>Information available at</b>	<a href="https://www.lmt.lt/lt/mokslo-finansavimas/era-net-ir-kitos-koordinavimo-veiklos/flag-era-ii/2351">https://www.lmt.lt/lt/mokslo-finansavimas/era-net-ir-kitos-koordinavimo-veiklos/flag-era-ii/2351</a>
<b>OTHER</b>	For detailed information please contact the National contact person

**LV – Latvia – VIAA**

<b>Country/Region</b>	Latvia
<b>Funding organisation</b>	Valsts izglitības attīstības aģentūra (VIAA)
<b>National contact person</b>	Dr. Maija Bundule, <a href="mailto:maija.bundule@viaa.gov.lv">maija.bundule@viaa.gov.lv</a>
<b>Funding commitment</b>	300 000 €
<b>Anticipated number of fundable research groups</b>	2 -3
<b>Eligibility of project duration</b>	Up to three years
<b>Maximum funding per awarded project / partner</b>	Up to 70 000 € per project partner, per project year
<b>Eligibility of a partner as a beneficiary institution</b>	<p>The following legal persons (as defined under the Latvian law) are eligible as beneficiaries:</p> <ul style="list-style-type: none"> <li>- R&amp;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;</li> <li>- Enterprises and companies, which are registered in the Register of Enterprises and performing their core business in the Republic of Latvia.</li> </ul>
<b>Eligibility of costs, types and their caps</b>	<p>Direct costs:</p> <ul style="list-style-type: none"> <li>- Personnel costs,</li> <li>- Other direct costs such as consumables, equipment (only depreciation costs), materials, organization of events, publications, etc.,</li> <li>- Subcontracts (up to 20% of total direct costs),</li> <li>- Travel costs.</li> </ul> <p>Indirect costs can reach a maximum of 25% of the total direct costs excluding subcontracts.</p>
<b>Submission of the full proposal at the national level</b>	No
<b>Submission of financial and scientific reports at the national level</b>	Financial and scientific (periodic and final) reporting at the national level will be needed in accordance with the terms of national contract.
<b>Information available at</b>	<a href="http://www.viaa.gov.lv">www.viaa.gov.lv</a>
<b>OTHER</b>	<p>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).</p> <p>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).</p>

## NL – Netherlands –ZonMw

<b>Country/Region</b>	The Netherlands
<b>Funding organisation</b>	Netherlands Organisation for Scientific Research (NWO)
<b>National contact person</b>	Drs Marjolein Scholten, <a href="mailto:scholten@zonmw.nl">scholten@zonmw.nl</a> , +31 70 349 5335
<b>Funding commitment</b>	A total budget of 250 k€ is available for HBP basic and applied research. With this budget ZonMw to fund Dutch applicant(s) in up to 1 to 2 projects.
<b>Anticipated number of fundable research groups</b>	1 to 2
<b>Eligibility of project duration</b>	No additional constraints in addition to those at the transnational level.
<b>Maximum funding per awarded project / partner</b>	The maximum amount of awarded ZonMw funding per project is 250 k€.
<b>Eligibility of a partner as a beneficiary institution</b>	<p>The most recent ZonMw Grant Rules apply (see <a href="#">ZonMw Grant Terms and conditions</a>). Researchers who are employed at Dutch universities or NWO- and KNAW-institutes or Academic Medical Centres may apply for funding and participate in a consortium as main applicant or as co-applicant. Enterprises are not eligible.</p> <p>An applicant may be involved in up to two proposals, of which only one as main applicant.</p> <p>Please also check our data management protocol:  <a href="https://www.zonmw.nl/en/research-and-results/open-science-fair-data/">https://www.zonmw.nl/en/research-and-results/open-science-fair-data/</a></p>
<b>Eligibility of costs, types and their caps</b>	See <a href="https://www.zonmw.nl/en/news-and-funding/funding/grant-conditions-and-finances/">https://www.zonmw.nl/en/news-and-funding/funding/grant-conditions-and-finances/</a> for ZonMw grant conditions and financial information.
<b>Submission of the full proposal at the national level</b>	No. However, prior to submission, applicants from the Netherlands should contact the National Contact Point indicated above.
<b>Submission of financial and scientific reports at the national level</b>	Financial and scientific (mid-term and final) reporting of funded projects at the national level is required, according to general ZonMw procedures.
<b>Information available at</b>	
<b>OTHER</b>	ZonMw does not financially support Graphene in this call

**RO – Romania – UEFISCDI**

<b>Country/Region</b>	Romania
<b>Funding organisation</b>	Executive Agency for Higher Education, Research, Development & Innovation Funding (UEFISCDI)
<b>National contact person</b>	Cristina Cotet, <a href="mailto:cristina.cotet@uefiscdi.ro">cristina.cotet@uefiscdi.ro</a> Domnica Cotet, <a href="mailto:domnica.cotet@uefiscdi.ro">domnica.cotet@uefiscdi.ro</a>
<b>Funding commitment</b>	500.000 Euro
<b>Anticipated number of fundable research groups</b>	3-4
<b>Eligibility of project duration</b>	36 months
<b>Maximum funding per awarded project / partner</b>	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).
<b>Eligibility of a partner as a beneficiary institution</b>	All legal entities (public and private sector)
<b>Eligibility of costs, types and their caps</b>	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).
<b>Submission of the full proposal at the national level</b>	If the project was selected for funding
<b>Submission of financial and scientific reports at the national level</b>	Reports are required at the national level, using the UEFISCDI procedures.
<b>Information available at</b>	<a href="http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html">http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html</a>
<b>OTHER</b>	The Romanian applicants must read carefully the information available at the link <a href="http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html">http://uefiscdi.gov.ro/articole/4536/Pachet-de-informatii-ERANETERANET-Cofund.html</a>



## SE – Sweden – VR

<b>Country/Region</b>	Sweden
<b>Funding organisation</b>	Swedish Research Council (VR)
<b>National contact person</b>	Tomas Andersson, +46 8 546 441 73, <a href="mailto:tomas.andersson@vr.se">tomas.andersson@vr.se</a>
<b>Funding commitment</b>	VR has committed in total SEK 1.5 million per year for Graphene – Basic research.
<b>Anticipated number of fundable research groups</b>	1-2
<b>Eligibility of project duration</b>	3 years
<b>Maximum funding per awarded project</b>	Indicative SEK 0.5-1.5 million per year for three years for the Swedish partner
<b>Eligibility of a partner as a beneficiary institution</b>	<p>1. SRC funds Swedish partners within the sub-call <b>Graphene – Basic Research</b>.</p> <p>2. SRC funds basic research of the highest scientific quality, and promotes research collaboration and the exchange of experience.</p> <p>3. Only legal persons are eligible as partners, natural persons are not allowed.</p> <p>4. The investigators need to hold a PhD at the time of application.</p> <p><b>5. The grants distributed by the SRC 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: <a href="https://vr.se/english/calls-and-decisions/apply-for-a-grant/who-can-apply.html">https://vr.se/english/calls-and-decisions/apply-for-a-grant/who-can-apply.html</a></b></p> <p>6. A researcher may only apply for funds from the SRC in <b>one</b> application in the FLAG-ERA JTC 2021. A researcher who already has an ongoing project from SRC in the FLAG-ERA JTC 2019 is not eligible to apply.</p>
<b>Eligibility of costs, types and their caps</b>	The project grant may be used to fund all types of project-related costs, such as salaries (including your own salary, however no more than corresponding to the person's activity level in the project), running costs (such as consumables, travel including stays at research facilities, publication costs and minor equipment), premises and depreciation costs. Grants may not be used for scholarships. If a doctoral student participates, project funds may not be paid out as salary during teaching or other departmental duties.. The minimum amount for which you may apply is SEK 400 000 per year, including indirect costs.
<b>Submission of the full proposal at the national level</b>	Yes, both at the pre-proposal stage and the full proposal stage. See below under other information.
<b>Submission of financial and scientific reports at the national level</b>	Yes, according to the terms and conditions of the grant agreement.
<b>Information available at</b>	See national call texts in <a href="#">Swedish</a> and <a href="#">English</a> for all national requirements.

<b>OTHER</b>	<p>Swedish applicants are encouraged to communicate with the national contact person regarding their intention to participate in the call, before submission of the consortium application.</p> <p>All Swedish project leaders participating in the call for support from the Swedish Research Council shall also submit a parallel application using the Swedish Research Council's application system Prisma. The application form in Prisma can be reached from the call text at the Council's website.</p> <p><b>Parallel application is a mandatory eligibility criterion. Failure to submit the parallel application to the Swedish Research Council before the deadline of the Prisma call will result in the Swedish partner being declared ineligible.</b></p>
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## SI – Slovenia – MIZS

<b>Country/Region</b>	Slovenia
<b>Funding organisation</b>	Ministry of Education Science and Sport
<b>National contact person</b>	Andrej Ograjensek, <a href="mailto:andrej.ograjensek@gov.si">andrej.ograjensek@gov.si</a> , +386 1 478 4634
<b>Funding commitment</b>	630.000 € including VAT
<b>Anticipated number of fundable research groups</b>	Up to 3 projects
<b>Eligibility of project duration</b>	36 months (3 years)
<b>Maximum funding per awarded project / partner</b>	Max 210.000 €
<b>Eligibility of a partner as a beneficiary institution</b>	Research organizations as defined in the national <a href="#">Research and Development Act</a> ( <i>Zakon o raziskovalni in razvojni dejavnosti – ZRRD</i> ). All participating institutions have to be registered in the Slovenian Research Agency register of research institutions (Informacijski sistem o raziskovalni dejavnosti v Sloveniji - Sicris).
<b>Eligibility of costs, types and their caps</b>	<b>Eligibility of costs:</b> MIZS will fund all eligible costs of Slovenian researchers participating in successful transnational projects, recommended for funding in accordance with the <i>Decree on criteria and standards</i> . 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 <u>personnel</u> , <u>material</u> and <u>equipment</u> 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 ( <i>Zakon o javnem naročanju</i> (Uradni list RS, št. 91/15 in 14/18) applies.
<b>Submission of the full proposal at the national level</b>	No
<b>Submission of financial and scientific reports at the national level</b>	Financial reports are submitted yearly at national level and final financial and scientific reports at the end of the project according to internal procedures.
<b>Information available at</b>	<a href="http://www.mizs.gov.si/si/javne_objave_in_razpisi/javni_razpisi/">http://www.mizs.gov.si/si/javne_objave_in_razpisi/javni_razpisi/</a>
<b>OTHER</b>	<b>Legal basis – national regulation:</b> State Administration Act ( <i>Zakon o državni upravi</i> (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 ( <i>Zakon o javnih financah</i> (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 evolutionary 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 ( <i>Zakon o izvrševanju proračunov Republike Slovenije za leti 2018 in 2019</i> (ZIPRS 1819) (Uradni list RS, št. 71/17 in 13/18-ZJF-H)); Integritty and Prevention of Corruption Act ( <i>Zakon o integriteti in preprečevanju korupcije</i> (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 development 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

	<p>consortium agreement between the selected consortium partners enters into force.</p> <p><b>Funding:</b> 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.</p> <p><b>National contracting negotiations:</b> 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 (<a href="mailto:andrej.ograjensek@gov.si">andrej.ograjensek@gov.si</a>; +386(1)4784634).</p>
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## SK – Slovakia – SAS

<b>Country/Region</b>	Slovakia
<b>Funding organisation</b>	Slovak Academy of Sciences (SAS)
<b>National contact person</b>	Ján Barančík, PhD. <a href="mailto:barancik@up.upsav.sk">barancik@up.upsav.sk</a> Zuzana Panisová, <a href="mailto:panisova@up.upsav.sk">panisova@up.upsav.sk</a>
<b>Funding commitment</b>	240 000 € (120 000 € Graphene, 120 000 € HBP)
<b>Anticipated number of fundable research groups</b>	Max. 2
<b>Eligibility of project duration</b>	Max. 36 months
<b>Maximum funding per awarded project / partner</b>	120 000 € / 36 months / partner
<b>Eligibility of a partner as a beneficiary institution</b>	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.
<b>Eligibility of costs, types and their caps</b>	Direct costs (DC): <ul style="list-style-type: none"> <li>▪ Personnel (max. 15% of DC, 30% if SAS is project coordinator)</li> <li>▪ Consumables</li> <li>▪ Equipment (max. 40% of DC)</li> <li>▪ Travel costs</li> </ul> Indirect costs (IC) - overheads: max. 20 % of DC. Total eligible costs = DC + IC
<b>Submission of the full proposal at the national level</b>	No
<b>Submission of financial and scientific reports at the national level</b>	Yes
<b>Information available at</b>	<a href="https://www.sav.sk/index.php?lang=sk&amp;doc=services-news&amp;source_no=25&amp;news_no=7569">https://www.sav.sk/index.php?lang=sk&amp;doc=services-news&amp;source_no=25&amp;news_no=7569</a>
<b>OTHER</b>	<p>It is highly recommended to contact NCP prior to submission of pre-proposal.</p> <p>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.</p> <p>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.</p>

**TR – Turkey – TUBITAK**

<b>Country/Region</b>	Turkey
<b>Funding organisation</b>	The Scientific and Technological Research Council of Turkey (TUBITAK)
<b>National contact person</b>	Serkan ÜÇER, <a href="mailto:serkan.ucer@tubitak.gov.tr">serkan.ucer@tubitak.gov.tr</a> , <a href="mailto:ncpfet@tubitak.gov.tr">ncpfet@tubitak.gov.tr</a> , +90 312 2981787
<b>Funding commitment</b>	400 k€
<b>Anticipated number of fundable research groups</b>	2-4
<b>Eligibility of project duration</b>	Up to 36 months.
<b>Maximum funding per awarded project / partner</b>	ARDEB 1001: 720K TL TEYDEB 1509: No limitation.
<b>Eligibility of a partner as a beneficiary institution</b>	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
<b>Eligibility of costs, types and their caps</b>	Equipment, consumables, human resources, travel, overheads, dissemination (like printing of booklets or organizing workshops)
<b>Submission of the full proposal at the national level</b>	Yes.
<b>Submission of financial and scientific reports at the national level</b>	Yes.
<b>Information available at</b>	Information will be available soon after the launch of the call at <a href="http://www.h2020.org.tr">www.h2020.org.tr</a> website

<b>OTHER</b>	<p>Selected proposals will be funded under either:</p> <ul style="list-style-type: none"><li>• ARDEB 1001 Scientific and Technological Research Projects Funding Program, or</li><li>• TEYDEB 1509 International Industrial R&amp;D Funding Programme</li></ul> <p>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&amp;D Funding Programme.</p> <p>Researchers should identify the most appropriate program for their proposals by analysing the program details in which can be found on:</p> <ul style="list-style-type: none"><li>• ARDEB 1001: <a href="https://www.tubitak.gov.tr/en/funds/academy/national-support-programmes/content-1001-scientific-and-technological-research-projects-funding-program">https://www.tubitak.gov.tr/en/funds/academy/national-support-programmes/content-1001-scientific-and-technological-research-projects-funding-program</a></li><li>• TEYDEB 1509: <a href="https://www.tubitak.gov.tr/en/funds/industry/international-support-programmes/content-1509-tubitak-international-industrial-rd-projects-grant-programme">https://www.tubitak.gov.tr/en/funds/industry/international-support-programmes/content-1509-tubitak-international-industrial-rd-projects-grant-programme</a></li></ul> <p>In addition to international submission, Turkish partners also need to complete their national submissions during both first and second stages.</p> <p><b>It is strongly recommended to contact NCP before the submitting their proposal.</b></p>
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