

FLAG-ERA 2022 Project Workshop

Agenda

Online

21-22 March 2022

Seminar objectives:

- *Present FLAG-ERA projects objectives and scientific progress*
- *Provide the overall picture of the Flagship environment for FLAG-ERA projects*
- *Network and Synergy between FLAG-ERA projects and the Flagship Core project*
- *Open discussion on issues and possibilities regarding Data Management*

Overview

Monday, March 21	Tuesday, March 22
Graphene	Human Brain Project
Lunch	Lunch
Graphene	Human Brain Project

JTC 2019: 16 projects Graphene: 9 BR + 7 ARI

JTC 2021: 10 projects Graphene: 7 BR + 2 ARI

- ⇒ 25 projects about 6.5 hours in 1 session or twice 3.5 hours if 2 parallel sessions (15 min per project)

JTC 2019: 9 projects HBP

JTC 2021: 3 projects HBP

- ⇒ 12 projects about 3 heures in 1 session (15 min per project)

Monday 21 March 2022 – Graphene

Time	Dur.	Item / goals	Speaker
08:45	0h15	Welcome	
09:00	1h	Introduction <ul style="list-style-type: none"> FLAG-ERA presentation + administrative aspects: Coordination of national and regional support to the Flagship (15 minutes) EIC opportunities for ERA-NET projects (10 minutes) Graphene Flagship presentation: unifying vision, organisation and activities (20 minutes) Graphene Flagship Partner Division and project association (15 minutes) 	ANR EIC; Marco Giorgini GF; Jari Kinaret GF; Ana-Maria Ciubotaru
10:00	1h	FLAG-ERA project presentations 2 parallel sessions	
		Session 1 <u>Enabling Science and Materials</u> (Div 1) Project presentations (4)	Session 2 <u>Health, Medicine and Sensors</u> (Div 2) Project presentations (4)
			Project Coordinators
11:00	0h30	Coffee break	
11:30	1h	Data Management Open Discusison <ul style="list-style-type: none"> Graphene Flagship presentation: (15 minutes) Projects open discussion and experience sharing (45 minutes) 	Eric Ramberg ,CIT Flagship partner
12:30	1h30	Lunch	
14:00	±1h30	Session 1 Continuation project presentations (7)	Session 2 Continuation project presentations (3)
	0		Project Coordinators
±15:30	0h30	Coffee break	
±16:00	±1h	Session 3 <u>Electronics and Photonics Integration</u> (Div 3) Project presentations (3)	Session 4 <u>Energy, Composites and Production</u> (Div 4) Project presentations (4)
			Project Coordinators
17:00	0h30	Wrap-up; open discussion continuation Plenary Discussion	xxx
17:30	0h10	Closure	FLAG-ERA
17:40		End of FLAG-ERA Graphene seminar	

Session 1 Enabling Science and Materials (Div 1) – 11 projects

TATTOOS: TunAble Twistrionics : local tuning and probing of TOpOlogical edge states and Superconductivity in bilayer graphene

SographMEM: Spin Orbit functionalized GRAPHeNe for resistive-magnetic MEMories

OPERA: Nanographene for quantum technologies

ETMOS: Epitaxial Transition Metal dichalcogenides Onto wide bandgap hexagonal Semiconductors for advanced electronics

DIMAG: Electrically controlled ferromagnetism in 2-dimensional semiconductors

To2Dox: Transferable 2D layers of correlated oxides

2DHetero: hBN/Graphene 2D Heterostructures: from scalable growth to integration

MULTISPIN: Molecular engineering of layered magnetic materials: towards multifunctional spintronic devices

MINERVA: MakIng New ElectRonic deVices from Amorphous materials

MNEMOSYN: 2D magnetic memories: scalable growth and hybrid electrical operation

2DSOTECH: 2Dimensional van der Waals Spin Orbit Torque Technology

Session 2 Health, Medicine and Sensors (Div 2) – 7 projects

PeroGaS: Solution-Processed Perovskite/Graphene Nanocomposites for Self-Powered Gas Sensors

MARGO: MAXillofacial bone Regeneration by 3D-printed laser-activated Graphene Oxide scaffolds

LEGOCHIP: Multifunctional Nanoporous Graphene Integration in Operational Nanophotonic Biosensor Devices

DeMeGRaS: Detection mechanisms in graphene radiation sensors

2D-NEMS: 2D-Material Heterostructure NEMS Sensors

DeGraph: Biodegradation of Graphene-based Materials by Environmental Bacteria

RESCUEGRAPH: Functional stimulation system for rehabilitation of gait and driving neural plasticity after spinal cord injury

Session 3 Electronics and Photonics Integration (Div 3) – 3 projects

GRAPHAR: Graphene enabled optical phased array for LIDAR applications

PhotoTBG: Moire enhanced infrared photodetection and THz emission in twisted graphene superlattices

ENPHOCAL: ENhanced Photoresponse of HOt CARriers through Lifetime engineering

Session 4 Energy, Composites and Production (Div 4) – 4 projects

PROSPECT: PatteRned cOatings based on 2D materials benzoxazine reSin hybrids for broad range Pressure detection

LASERGRAPH: In-situ laser fabrication of graphene electrodes and interlayers for next generation CIGS/Perovskite solar cells

GO-FOR-WATER: Graphene cOmposites FOR advanced drinking WATER treatment

VEGA: Vertical Graphene for Aluminium-Ion Batteries

Time	Dur.	Item / goals	Speaker
08:30	0h30	Welcome	
09:00	1h15	Introduction <ul style="list-style-type: none"> • FLAG-ERA presentation + administrative aspects: Coordination of national and regional support to the Flagship (15 minutes) • EIC opportunities for ERA-NET projects (10 minutes) • HBP / EBRAINS presentation: organisation and activities (20 minutes) • HBP / EBRAINS Partner Division and project association (15 minutes) 	ANR EIC; Marco Giorgini Steven Vermeulen, HBP / EBRAINS Marie-Elisabeth Colin HBP / EBRAINS
10:15	0h45	FLAG-ERA project presentations – Session 1	PP coordinators
11:00	0h30	Coffee break	
11:30	1h	Data Management Open Discusison <ul style="list-style-type: none"> • HBP / EBRAINS presentation: EBRAINS Data and Knowledge services (15 minutes) • Projects open discussion and experience sharing (45 minutes) 	Maaïke van Swieten and Jan Bjaalie; Uni Oslo; HBP/EBRAINS xxx
12:30	1h30	Lunch	
14:00	0h45	FLAG-ERA project presentations – Session 2 <i>Continuation project presentations</i>	Project Coordinators
14:45	0h45	FLAG-ERA project presentations – Session 3 <i>Continuation project presentations</i>	Project Coordinators
15:30	0h30	Coffee break	
16:00	0h45	FLAG-ERA project presentations – Session 4 <i>Continuation project presentations</i>	Project Coordinators
16:45	0h30	Wrap-up; open discussion continuation <i>Plenary Discussion</i>	xxx
17:15	0h10	Closure	FLAG-ERA
17:25		End of FLAG-ERA HBP seminar	

Session 1

SENSEI: Segmentation of Neurons using Standard and Super-Resolution Microscopy

NeuronsReunited: Neurons reunited: data and software to reconstruct long-range projection neurons, place them in a digital reference brain with high precision, and model their interactions

SMART Brain: Advanced Morphological Reconstruction of Human Brain Tissue by Multimodal Fusion of Multiscale Optical Imaging Technologies

Session 2

Sound Signht: The sight of sound: how vision shapes the development of auditory inputs to the occipital cortex

DOMINO: Development of cortical multisensory integration mechanisms at micro- and macro- scales during normal and pathophysiological conditions

PrimCorNet: Layer-specific characterization and modeling of fronto-parietal dynamics in primate cortical networks

Session 3

MILEDI: Multiscale Modelling of Impaired LEarning in Alzheimer’s Disease and Innovative Treatments

MODEM: The “Motor-way” to Decision-Making: how the motor system drives cue-triggered decisions

ModelDXConsciousness: Combining model free and model based biomarkers for the consciousness diagnosis

Session 4

TrapMEDD: Translational Platform for MSA: Elucidation of Disease-mechanisms and Drug discovery

HA-Action: Hypothalamic histaminergic modulation of brain regions involved in fear memory

VIP-attract: The role of GABAergic neuron subtypes in stabilizing and flexibly resetting head-direction signals in the Presubicular cortex