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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)**

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Monday 21 March 2022 – Graphene

Time	Dur.	Item / goals		Speaker
08:45	0h15	Welcome		
09:00	1h	**Introduction** • 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 Cuibotaru*
10:00	1h	**FLAG-ERA project presentations 2 parallel sessions**		
		Session 1 Enabling Science and Materials (Div 1) *Project presentations (4)*	**Session 2** Health, Medicine and Sensors (Div 2) *Project presentations (4)*	Project Coordinators
11:00	0h30	Coffee break		
11:30	1h	**Data Managment Open Discusison** • 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)*	Project Coordinators
±15:00	0h30	Coffee break		
±16:00	±1h	**Session 3** Electronics and Photonics Integration *(Div 3)* *Project presentations (3)*	**Session 4** Energy, Composites and Production (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		

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

TATTOOS: TunAble Twistronics : 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**2DSOTECH**: 2Dimensional van der Waals Spin Orbit Torque Technology
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

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

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Tuesday 22 March2022– HBP

Time	Dur.	Item / goals	Speaker
08:30	0h30	Welcome	
09:00	1h15	**Introduction** • 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 Managment Open Discusison** • HBP / EBRAINS presentation: EBRAINS Data and Knowledge services (15 minutes) • Projects open discussion and experience sharing (45 minutes)	*Jan Bjaalie; Prof Uni Oslo; HBP/EBRAINS* *xxx*
12:30	1h30	Lunch	
14:00	0h45	**FLAG-ERA project presentations – Session 2** *Continuation project presentations*	Project Coordinators
14:45	0h45	**FLAG-ERA project presentations – Session 3** *Continuation project presentations*	Project Coordinators
15:30	0h30	Coffee break	
16:00	0h45	**FLAG-ERA project presentations – Session 4** *Continuation project presentations*	Project Coordinators
16:45	0h30	**Wrap-up; open discussion continuation** *Plenary Discussion*	xxx
17:15	0h10	Closure	FLAG-ERA
17:25		End of FLAG-ERA HBP seminar	

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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