

GRAPHENE

WEEK

Programme 2018



GRAPHENE FLAGSHIP



Funded by the European Union

WELCOME

On behalf of the Graphene Flagship, I wish to welcome you to the 13th edition of Graphene Week. I hope you enjoy the Conference and your time in beautiful San Sebastian. The city, long known as a tourist destination, is now also becoming known as a city of science and technology, with new research centres, first-class scientists from around the world and the support of strong industrial activity in the region.

The fundamental science behind graphene and other two-dimensional materials is key at Graphene Week—as it helps to explore new concepts that will lead to the applications of the future—but there will also be a focus on applied science (electronic devices, sensors, flexible electronics, biomedical applications, composites, energy storage, etc.) and on graphene for a sustainable future, including renewable energies.

Graphene Week will include talks from 30 keynote and invited speakers, 95 oral presentations across three parallel sessions, four fringe sessions, over 300 poster contributions, a Graphene Innovation Forum and an Exhibition area.

A special effort has been made this year to combine an excellent program, including speakers from all over the world, with the organization of specific workshops including Graphene for Human Space Exploration, Women in Graphene and a US-EU Workshop on 2D Materials.

We hope you enjoy this opportunity to learn about the latest advances in graphene and other two-dimensional materials and to network with your peers, opening the door to new collaborations and exciting new research.

Thank you for joining us in San Sebastian!



JOSE M. PITARKE
Conference Chair
Director of nanoGUNE



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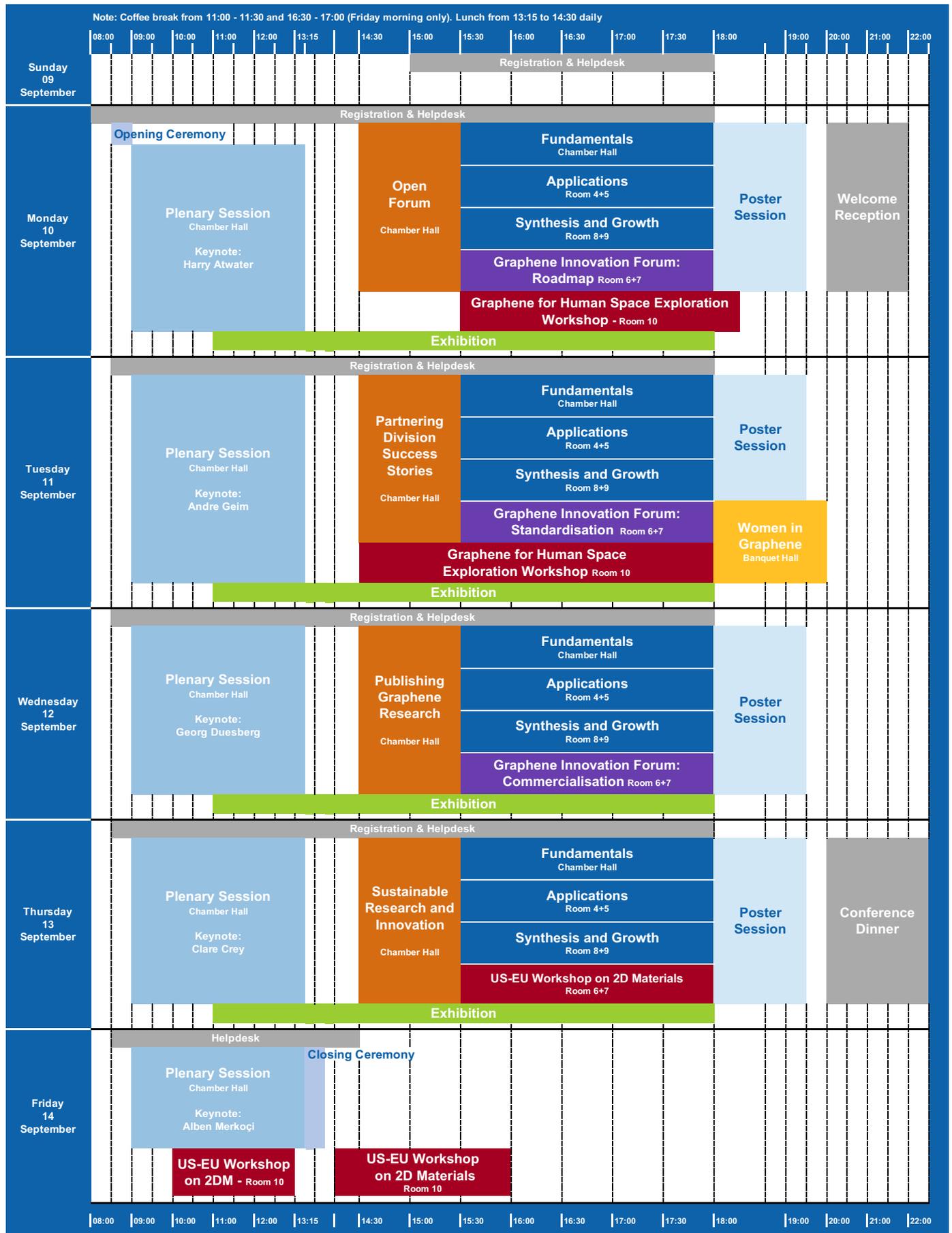
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Graphene Week 2018 - Programme Overview



SUNDAY 9 SEPTEMBER

15:00–18:00

REGISTRATION & HELPDESK

MONDAY 10 SEPTEMBER

07:45–18:00

REGISTRATION & HELPDESK

08:30–09:00

OPENING CEREMONY – Chamber Hall

JOSE MARIA PITARKE Chair of Graphene Week 2018

JARI KINARET Director of Graphene Flagship

JEAN-FRANÇOIS BUGGENHOUT Head of FET Flagships Unit at DG CONNECT, European Commission

MARKEL OLANO President of the Regional Council of Gipuzkoa

IÑIGO URKULLU President of the Basque Government

11:00–18:00

EXHIBITION – Exhibition Hall

09:00–13:15

PLENARY SESSION – Chairs: Javier Aizpurua and Jong-Hyun Ahn – Chamber Hall

09:00 HARRY ATWATER Tunable light-matter interactions in graphene

09:50 FRANK KOPPENS Quantum nano-devices and polaritons heterostructures 2D materials

10:25 DMITRI BASOV Plasmon polaritons in twisted bilayer graphene

11:00 Coffee in the Exhibition

11:30 XIADONG XU Moiré-excitons in MoSe₂/WSe₂ heterobilayers

12:05 AMALIA PATANE From epitaxy to science and processing technologies of novel van der Waals crystals

12:40 KIRILL BOLOTIN Bending, pulling, and cutting wrinkled two-dimensional materials

13:15–14:30

LUNCH IN THE EXHIBITION HALL

14:30–15:30

FRINGE SESSION I: OPEN FORUM – Chamber Hall

Learn more about the Graphene Flagship project and creating joint networking possibilities.

Speakers: JARI KINARET

THOMAS REISS

Panellists: JEAN-FRANÇOIS BUGGENHOUT

AMAIA ZURUTUZA

FABRIZIO TUBERTINI

MEGANNE CHRISTIAN

Moderator: ZUBEROA MARCOS

15:30–18:00

PARALLEL SESSION I: FUNDAMENTALS – Chairs: Luis Hueso and Deji Akinwande – Chamber Hall

15:30 MIGUEL M. UGEDA Observation of Topologically Protected States at Crystalline Phase Boundaries in Single-layer WSe₂

15:45 ROSHAN K. KUMAR Electron Hydrodynamics in Graphene: Introduction and Status

16:00 VITOR PEREIRA Reproduction of the charge density wave phase diagram in 1T-TiSe₂ exposes its excitonic character

16:15 KRISTEN KAASBJERG Unprecedented transport properties of monolayer TMD devices: Experiment and theory

16:30 Coffee in the Exhibition

17:00 SABINA CANEVA Mechanically controlled quantum interference in graphene break junctions

17:15 ROMAIN DANNEAU Confining superconductivity in graphene bilayers

17:30 KISUNG CHAE Two-Dimensional T3X (T=C, Si, Ge, Sn; X=O, S, Se, Te) Compounds with Tetrahedral Bonding

17:45 ANDRÉS AYUELA Stable Carbon Monosulfide Nanostructures: Chain Arrays and Monolayers

15:30–18:00 **PARALLEL SESSION II: APPLICATIONS – Chairs: Rainer Hillenbrand and Amalia Patane – Rooms 4+5**

- 15:30 SIMONE SCHULER** Graphene photodetector based on a photonic crystal defect-waveguide
- 15:45 DMITRI EFETOV** High-speed bolometry based on Johnson noise detection of hot electrons in cavity-coupled graphene
- 16:00 SEBASTIAN CASTILLA** High-speed and highly sensitive detection of terahertz radiation using photo-thermoelectric effect in high mobility graphene
- 16:15 ARTUR MOREIRA-PINTO** Graphene inks for printing of flexible and stretchable electronics
- 16:30** Coffee in the Exhibition
- 17:00 EVGENIYA LOCK** Novel graphene functionalization leading to ultrasensitive, robust and fast sulfur contaminants detection in aviation fuels
- 17:15 RAIVO JAANISO** Graphene-based electronic nose for outdoor air quality
- 17:30 PETER STEENEKEN** Graphene pressure sensors: concepts and challenges
- 17:45 PAUL CAMPBELL** Use of two-dimensional transition metal dichalcogenide films for rapid and sensitive detection of hazardous chemical vapors

15:30–18:00 **PARALLEL SESSION III: SYNTHESIS AND GROWTH**
Chairs: Irene Palacio and Mar Garcia Hernandez – Rooms 8+9

- 15:30 YUYOUNG SHIN** Liquid-phase exfoliation of graphene in water using positively charged pyrene derivatives
- 15:45 PABLO ARES** Isolation of highly stable antimonene under ambient conditions
- 16:00 ANTONIO E. DEL RIO** Bridging the gap between lab and industrial scale production of 2D crystals
- 16:15 PIOTR KAMEDULSKI** The synthesis of CNT-graphene composite
- 16:30** Coffee in the Exhibition
- 17:00 MAURO OCH** High-Mobility and High-Optical Quality Atomically Thin WS₂
- 17:15 HSUAN-AN CHEN** Selective growth and contact resistance reduction of Single-Crystal Antimonene prepared by molecular beam epitaxy on MoS₂
- 17:30 NEERAJ MISHRA** Scalable metal-free CVD growth of graphene on sapphire
- 17:45 VITALY BABENKO** Routes to high quality h-BN material by CVD

15:30–18:00 **GRAPHENE INNOVATION FORUM: ROADMAP – Chair: Francesco Bonaccorso – Rooms 6+7**

- 15:30 THOMAS REISS** Identifying promising Graphene applications using the Graphene Flagship Technology and Innovation Roadmap
- 15:50 LIJUN YIN** Chinese Graphene Industry and Graphene Products Certification
- 16:10 PAOLO BONDAVALLI** Spray-gun deposition method for nanomaterials. Implementation for large impact applications
- 16:30** Coffee in the Exhibition
- 17:00 ANTONIO D'ERRICO** The Sustainable Roadmap in ICT Leveraging on Graphene
- 17:20 ANTONIO CORREIA** Graphene and 2D Materials EUREKA Cluster: Fostering European Competitiveness
- 17:40 BLANCA GUASCH** Innovation as a Key Factor for the Development of Commercial Products with Graphene

15:30–18:15 **GRAPHENE FOR HUMAN SPACE EXPLORATION WORKSHOP**
Chairs: Carlo Saverio Iorio, Monica Monici, Lucia Delogu, Alberto Bianco – Room 10 B+C

- 15:30 JASON P. HATTON** The European Space Agency programme for Human Space Exploration
- 16:00 DENIZ BETEN** NATO Science for Peace and Security Programme
- 16:30** Coffee in the Exhibition
- 17:00 LUCIA LOMBARDI** Graphene strain sensors
- 17:15 VANJA MISKOVIC** Alginate-graphene oxide composites for applications in biosensors: wettability and mechanical properties
- 17:30 FELICE STROLLO** Insulin resistance as the possible link between microgravity and impaired wound healing
- 17:45 GEMMA RIUS** Graphene potential in extreme conditions founded on multidisciplinary methods and micro nanotechnologies
- 18:00 SANTIAGO CARTAMIL-BUENO** Laser-induced propulsion of graphene lightsails in microgravity

18:00–19:30 **POSTER SESSION 1**

20:00–22:00 **WELCOME RECEPTION**

TUESDAY 11 SEPTEMBER

08:00–18:00	REGISTRATION & HELPDESK
11:00–18:00	EXHIBITION – Exhibition Hall
09:00–13:15	PLENARY SESSION – Chairs: Annick Loiseau and M. Pilar López-Sancho – Chamber Hall
09:00	ANDRE GEIM Electron hydrodynamics and Brown-Zak oscillations
09:50	PABLO JARILLO-HERRERO Magic Angle Graphene: a New Platform for Strongly Correlated Physics
10:25	ALBERTO MORPURGO Electronic phase transitions in graphene multilayers
11:00	Coffee in the Exhibition Hall
11:30	FELIX CASANOVA Spintronics with 2D-material-based heterostructures
12:05	DEJI AKINWANDE Atomristors: The Discovery of Universal Memory Effect in Monolayer TMDs and h-BN
12:40	CINZIA CASIRAGHI Water-based, biocompatible and inkjet printable 2D-inks
13:15–14:30	LUNCH IN THE EXHIBITION HALL
14:30–15:30	FRINGE SESSION II: PARTNERING DIVISION SUCCESS STORIES Chair: Vincenzo Palermo – Chamber Hall
	This fringe session offers Graphene Flagship Associated Members and Partnering Projects the opportunity to showcase their graphene-related results.
14:30	LUCIAN COVACI Trans2DTMD project: transport and optoelectronic properties of 2D materials
14:50	ANDREY TURCHANIN H ₂ O – Heterostructures of 2D materials and organic semiconductor nanolayers
15:10	RAQUEL LLORENS-CHIRALT Efficient CO ₂ capture and oil/water separation by innovative adsorbents based on modified Graphene structures
15:30–18:00	PARALLEL SESSION I: FUNDAMENTALS Chairs: Angelika Knothe and Bo Hellsing – Chamber Hall
15:30	STEPHAN ROCHE Tailoring Spin Dynamics in Graphene by Proximity Effects induced by TMDC and Topological Insulators
15:45	TALIEH GHIASI Large spin lifetime anisotropy in transition metal dichalcogenide/graphene heterostructures
16:00	MAHABUB A. BHUIYAN Fe-induced magnetism in van der Waals InSe semiconductor crystals
16:15	ANDRES ARNAU Evidence of large spin-orbit coupling effects in quasi-free-standing graphene on Pb/Ir(111)
16:30	Coffee in the Exhibition Hall
17:00	M. PILAR LÓPEZ-SANCHO Charged topological solitons in zigzag graphene nanoribbons
17:15	GIANCARLO SOAVI Broadband electrically tuneable third harmonic generation in graphene
17:30	ALEXEY KUZMENKO Colossal Landau-level absorption in hBN/graphene/hBN heterostructure
17:45	ION ERREA CDW temperature in bulk and monolayer transition metal dichalcogenides from first-principles
15:30–18:00	PARALLEL SESSION II: APPLICATIONS Chairs: Vittorio Pellegrini and Marika Schleberger – Rooms 4+5
15:30	IN HYUK SON Popcorn-like graphene growth for high performance lithium rechargeable batteries
15:45	JUAN LUIS GÓMEZ URBANO The role of graphene-based materials in Li-S batteries
16:00	HUBERT BEISCH Globugraphite – new carbon foam for technical application
16:15	PANIZ SOLTANI Synthesis of Novel Carbon Materials for Supercapacitor Applications
16:30	Coffee in the Exhibition Hall
17:00	LAURA CIAMMARUCHI Hydrogen storage in carbon via water splitting
17:15	SEBASTIANO BELLANI 2D crystals for efficient, solution-processed, pH-universal electrocatalysts for hydrogen evolution reaction
17:30	MARK BISSETT Chemically functionalized laminar MoS ₂ membranes for nanofiltration
17:45	COSTAS GALIOTIS Development of multi-functional macro-scale CVD graphene/polymer nanolaminates

15:30–18:00

PARALLEL SESSION III: SYNTHESIS AND GROWTH

Chairs: Claire Berger and Chong Min Koo – Rooms 8+9

- 15:30 HENRI PRÉVOST** Low Pressure CVD growth of multilayer sp² Boron Nitride on metallic substrates and extended characterization
- 15:45 DEBDEEP JENA** Quantum Materials and Devices Built Using 2D Materials
- 16:00 ABHAY SHIVAYOGIMATH** A general approach for the synthesis of two-dimensional compounds by chemical vapour deposition
- 16:15 ALBERT DAVYDOV** CVD growth of n- and p- type MoTe₂ single crystals for phase-change applications
- 16:30** Coffee in the Exhibition Hall
- 17:00 ARAN GARCIA-LEKUE** Multifunctional nanoporous graphene: bottom-up synthesis and electronic characterization
- 17:15 JOAN REDWING** Epitaxial growth of wafer-scale transition metal dichalcogenides by gas source CVD
- 17:30 JACEK BARANOWSKI** Structural and Electronic Properties of Carbon Doped Boron Nitride Epilayers
- 17:45 MASAKI TANEMURA** Exploration of novel catalysts for the low temperature growth of graphene based on *in-situ* TEM

15:30–18:00

GRAPHENE INNOVATION FORUM: STANDARDISATION – Chair: Thomas Reiss – Rooms 6+7

- 15:30 ALBERT REDÓ** A step forward for graphene quality control standardization: ONYX
- 15:50 ANDREW POLLARD** Rapid characterisation of the size of commercially-produced graphene and graphene oxide flakes
- 16:10 SAMANEH ETEMADI** A systematic study of stability of Graphene oxide (GO)
- 16:30** Coffee in the Exhibition Hall
- 17:00 NORBERT FABRICIUS** Graphene Industrialization – The Role of Documentary Standards
- 17:20 ANGELA HIGHT-WALKER** Metrology and Standardization in Emerging Areas: Graphene and 2D Materials
- 17:40 JI-BEOM YOO** Strategy and activities of standardization of graphene and related 2D materials in Korea

14:30–18:00

GRAPHENE FOR HUMAN SPACE EXPLORATION WORKSHOP

Chairs: Carlo Saverio Iorio, Monica Monici, Lucia Delogu, Alberto Bianco – Room 10 B+C

- 14:30 DESIRE PANTALONE** Acute care surgery and trauma surgery in extreme environment
- 14:45 CHIARA ZANARDI** Electrochemical bio-sensors based on 2D materials
- 15:00 MONICA MONICI** The role of mechanical factors in wound healing
- 15:15 LIVIA ELENA CRICA** How do graphene oxide sheets interact with the blood in vivo
- 15:30 MARCO PELIN** Impact of graphene related materials on skin keratinocytes: are they suitable for wound healing applications?
- 15:45 LUCIA MORBIDELLI** Safety and biocompatibility of synthetic biomaterials to be used in tissue repair and regeneration
- 16:00 ESTER VAZQUEZ** Preparation and Applications of Hybrid Graphene Hydrogels
- 16:15 MANUELA MELUCCI** Enhanced adhesion of brain cells on biomimetic graphene-oxide-phospholipids substrates
- 16:30** Coffee in the Exhibition Hall
- 17:00 GABRIELE CECCARELLI** Autologous micro-grafts for tissue engineering applications
- 17:15 LUCIA GEMMA DELOGU** Graphene immune modulation
- 17:30 YARJAN ABDUL SAMAD** Chemiresistive sensing with exfoliated graphite/polymer aerogels
- 17:45 MAURIZIO CASALINO** Vertically illuminated near-infrared graphene/silicon photodetectors

18:00–20:00

WOMEN IN GRAPHENE – Chair: Siân Fogden – Banquet Hall

The Graphene Flagship's Women in Graphene initiative was established to help support women and create a more gender diverse scientific community. A group discussion will follow the presentations in this session.

ANNICK LOISEAU My Path in Science as a Response to a Physics Professor's Statement on Gender Issues in the Seventies

SANNA ARPIAINEN The Gender Effect

ALBA CENTENO Switching Career from Academia to Industry

18:00–19:30

POSTER SESSION 2

WEDNESDAY 12 SEPTEMBER

08:00–18:00	REGISTRATION & HELPDESK
11:00–18:00	EXHIBITION – Exhibition Hall
09:00–13:15	PLENARY SESSION – Chairs: Amaia Zurutuza and Nikolaus Nestle – Chamber Hall 09:00 GEORG DÜSBERG Growth of TMDs for applications in future electronics 09:50 LUIGI COLOMBO A perspective on single crystal growth of 2D materials 10:25 CLAIRE BERGER Epitaxial graphene: from semiconducting to exceptional ballistic conductors 11:00 Coffee in the Exhibition 11:30 PETER BØGGILD Manufacture and metrology challenges for 2D material 12:05 VINCENZO PALERMO Selective gas permeation in graphene oxide-polymer self-assembled multilayers 12:40 BRUNETTO MARTORANA Graphene: a frontier for a new class of Multifunctional Lightweight Structures in Automotive Sector
13:15–14:30	LUNCH IN THE EXHIBITION HALL
14:30–15:30	FRINGE SESSION III: PUBLISHING GRAPHENE RESEARCH – Chamber Hall <p>Publishing one's work is an important part of any researchers career. Take the opportunity to meet editors from scientific journals and learn more about their work in this session.</p> <p>Moderator: REBECCA WATERS Graphene Flagship Communications Officer</p> <p>Panellists: ALEX WOTHERSPOON Publisher for Nanotechnology, 2D Materials COSTAS GALIOTIS Editor-in-Chief for Graphene Technology ELENA BELSOLE Editor-in-Chief for Communications Physics OLGA BUBNOVA Associate Editor for Nature Nanotechnology</p>
15:30–18:00	PARALLEL SESSION I: FUNDAMENTALS – Chairs: Vladimir Falko and Costas Galiotis – Chamber Hall 15:30 ANNICK LOISEAU Studying the dielectric function of free-standing 2D materials with angular resolved electron energy loss spectroscopy 15:45 EVAN REED A guided safari through the properties of over 1000 layered materials revealed by data mining techniques 16:00 SAMUEL BREM Exciton Relaxation Cascade in Two-dimensional Transition-metal dichalcogenides 16:15 NIELS HESP Super-planckian electron cooling in a Van der Waals stack 16:30 Coffee in the Exhibition 17:00 STEFAN BROMLEY Post-graphene organic Dirac materials with tunable spin-polarised and closed-shell semiconducting states 17:15 AMBER McCREARY Intricate Resonant Raman Response in Anisotropic Rhenium Diselenide (ReS ₂) 17:30 GWAN-HYOUNG LEE Characterizing chemically grown MoS ₂ grain boundaries by atomic force microscopy 17:45 JAKE GREENER Coherent acoustic phonons in van der Waals InSe nanolayers and InSe/hBN heterostructures
15:30–18:00	PARALLEL SESSION II: APPLICATIONS Chair: Marco Romagnoli and Siva Bohm – Rooms 4+5 15:30 JEANIE LAU Spin and Charge Transport in Few-Layer Graphene and Phosphorene Devices 15:45 MUHAMMAD ASAD Graphene field-effect transistors for high frequency applications 16:00 KURT GASKILL Remote epitaxy: a path to tomorrow's electronics 16:15 STEVEN KOESTER 2D materials for a new generation of multi-functional devices 16:30 Coffee in the Exhibition 17:00 LUCIA LOMBARDI Loop heat pipes for space applications with graphene coated wicks 17:15 TIAN CAREY Spray coating thin films on three-dimensional surfaces for a semi-transparent capacitive touch device 17:30 CRISTINA VALLES Sprayable highly conductive graphene/polyelectrolyte layer-by-layer coatings 17:45 MARCO GOISIS Development of new graphene-modified photocatalysts for cementitious surfaces for environmental remediation

15:30–18:00

PARALLEL SESSION III: SYNTHESIS AND GROWTH
Chairs: Sara Dale and Luigi Colombo – Rooms 8+9

- 15:30 GABRIELA COPETTI** Incorporation of chlorine and fluorine dopants on MoS₂
- 15:45 MAXIM RYBIN** Modification of the optical and electrical properties of CVD graphene
- 16:00 ANDREAS JOHANSSON** Dressing graphene with a pattern of epoxy and hydroxyl groups
- 16:15 CIAN BARTLAM** On the rational design of aqueous graphene dispersants
- 16:30** Coffee in the Exhibition
- 17:00 MICHAL OTYEPKA** Synthesis and Properties of Covalently Functionalized Graphenes
- 17:15 FUMIN HUANG** Layer-by-layer laser thinning of graphene oxide few-layers
- 17:30 ALBERTO FINA** Molecular Junctions between Graphene Nanoplatelets to Enhance Heat Transfer in Nanomaterials
- 17:45 YASUNORI TATENO** Chemical State Analysis on the Interface between Graphene and Al₂O₃ using Synchrotron Radiation

15:30–18:00

GRAPHENE INNOVATION FORUM: COMMERCIALISATION – Chair: Sophie Charpentier – Rooms 6+7

- 15:30 ALBA CENTENO** Graphene Wafer Scale Integration
- 15:50 FRANCESCO BONACCORSO** Graphene-based Materials: The route Towards Commercialization
- 16:10 RICHARD-MARC LACASSE** Graphene Start-ups: Making Inroads on the Canadian Stock Markets
- 16:30** Coffee in the Exhibition
- 17:00 IÑIGO CHAROLA** High-quality CVD Graphene Field-Effect Transistors
- 17:20 IÑIGO MARTIN FERNANDEZ** Integration of CVD graphene for wafer scale fabrication of devices
- 17:40 KEN VERGUTS** Ion intercalation is the main mechanism to delaminate CVD graphene from platinum substrates

18:00–19:30

POSTER SESSION 3**GRAPHENE INNOVATION FORUM****ROADMAP****15:30–18:00 MONDAY, 10 SEPTEMBER**

The Graphene Innovation Forum begins with a session dedicated entirely to roadmapping graphene and other 2D materials towards future applications and will focus firmly on the needs and perspectives of industry. Graphene and other 2D material technologies have promising properties and the potential to lead to advancements in different applications.

STANDARDISATION**15:30–18:00 TUESDAY, 11 SEPTEMBER**

The importance of standardisation for any material that is to be commercially successful cannot be overstated and there are many different issues surrounding standardisation of graphene and other 2D materials. Several of these issues will be explored in this session.

COMMERCIALISATION**15:30–18:00 WEDNESDAY, 12 SEPTEMBER**

Commercialisation is at the heart of the Graphene Innovation Forum and this session will explore how to accelerate graphene and related 2D materials through to commercialisation.



THURSDAY 13 SEPTEMBER

08:00–18:00	REGISTRATION & HELPDESK
11:00–18:00	EXHIBITION – Exhibition Hall
09:00–13:15	PLENARY SESSION – Chairs: Laura Ciammaruchi and Marco Goisis – Chamber Hall
	<p>09:00 CLARE GREY Applications of Graphene and 2D Carbons in Energy Storage</p> <p>09:50 VITTORIO PELLEGRINI Graphene-based electrodes for high-power batteries</p> <p>10:25 MAURICIO TERRONES A review of Defects in Metal Dichalcogenides: Doping, Alloys, Interfaces, Vacancies and Their Effects in Catalysis & Optical Emission</p> <p>11:00 Coffee in the Exhibition</p> <p>11:30 MARIKA SCHLEBERGER Nanoporous 2D materials: From Membranes to Catalysis</p> <p>12:05 SLAVEN GARAJ Graphene-based membranes</p> <p>12:40 SIVA BOHM Industrial applications of graphene tuned coatings</p>
13:15–14:30	LUNCH IN THE EXHIBITION HALL
14:30–15:30	FRINGE SESSION IV: SUSTAINABLE RESEARCH & INNOVATION Chair: Vincenzo Palermo – Chamber Hall
	<p>Given the potential impacts of the Graphene Flagship, concepts, methods and tools are required to ensure that the research conducted and the innovations created in this context address society's needs, do not clash with fundamental societal values, and anticipate as far as possible unintended effects.</p> <p>14:30 RALF LINDNER Towards Responsible Research and Innovation in the Graphene Flagship: Concepts and Practical Approaches</p> <p>15:00 BENGT FADEEL Safety assessment of graphene-based materials: lessons from Nano safety research</p>
15:30–18:00	PARALLEL SESSION I: FUNDAMENTALS – Chair: Xiaodong Xu and Dmitri Basov – Chamber Hall
	<p>15:30 MIKA PETERSSON Optical forging of graphene into three-dimensional shapes</p> <p>15:45 CARINO FERRANTE Raman spectroscopy of graphene under ultrafast laser excitation</p> <p>16:00 KEN LIU Ultra-fast Photon emission and pulse propagation in graphene</p> <p>16:15 MORTEN GJERDING Layered van der Waals crystals and heterostructures with hyperbolic light dispersion</p> <p>16:30 Coffee in the Exhibition</p> <p>17:00 MARTA AUTORE Boron nitride nanoresonators for enhanced molecular vibrational spectroscopy and strong coupling</p> <p>17:15 ANTONELLO SINDONA Interband plasmon of silicene grown on silver</p> <p>17:30 DAVID ALCARAZ Confinement of plasmons down to one atom with Graphene/hBN/metal Heterostructures</p> <p>17:45 IRATI ALONSO A near deterministic plasmonic quantum Zeno gate using graphene nanoribbons</p>
15:30–18:00	PARALLEL SESSION II: APPLICATIONS Chairs: Teófilo Rojo and Maurizio Prato – Rooms 4+5
	<p>15:30 SANJAY B. THORAT Graphene-polymer composites: the effect of flakes aspect ratios on the composite properties</p> <p>15:45 GRISELDA GALLAND Polyolefin/r-GO/CNT-Fe nanocomposites with magnetic and semiconductor properties</p> <p>16:00 ANASTASIOS MANIKAS Out-of-plane phenomena and fracture of graphene/polymer systems</p> <p>16:15 KAI-GE ZHOU Tunable graphene-based membranes</p> <p>16:30 Coffee in the Exhibition</p> <p>17:00 LUCIA DELOGU Transcriptomic and single cell interaction properties of graphene in human primary immune cells</p> <p>17:15 INÊS GONÇALVES Coatings of graphene nanoplatelets for antimicrobial silicone catheters</p> <p>17:30 LAURA SAENZ DEL BURGO Hybrid alginate-graphene oxide microcapsules for the development of cell-based therapies</p> <p>17:45 MARÍA CONCEPCIÓN SERRANO Tissue response of the injured rat spinal cord to the implantation of reduced graphene oxide scaffolds and microfibers</p>

15:30–18:00

PARALLEL SESSION III: SYNTHESIS AND GROWTH

Chairs: Peter Bøggild and Sanna Arpiainen – Rooms 8+9

- 15:30 IRENE PALACIO** NaCl films as capping layers for graphene
- 15:45 IAN KINLOCH** Electrochemical Exfoliation of 2D materials for composite and energy applications
- 16:00 YU-WEI ZHANG** Complete selenization of MoS₂ to form wafer-scale and layer number controllable MoSe₂ films
- 16:15 HAPPINESS IJIJE** Production of graphene related materials in molten chlorides
- 16:30** Coffee in the Exhibition
- 17:00 NIKOLAUS NESTLE** Scaling up material innovations enabled by top-down GRM: a need for value chain bundles reflecting coupled production
- 17:15 ESTER VAZQUEZ** Sweet Green Graphene: A Mechanochemical Synthesis
- 17:30 BLERINA GJOKA** Towards Highly Modified Graphene Oxide and Functional Derivatives for Industrial Applications

15:30–18:00

US-EU WORKSHOP ON 2D MATERIALS – Chairs: Alan Seabaugh and Vladimir Falko – Rooms 6+7

- 15:30 ANDREA FERRARI** Light scattering and emission from layered materials
- 15:45 ALAN SEABAUGH** Top-gated few-layer WSe₂-on-sapphire field-effect transistors grown by chemical vapor deposition
- 16:00 MARCO ROMAGNOLI** Graphene use in photonics for telecommunications
- 16:15 SUSAN FULLERTON** Using ions to control transport in two-dimensional materials
- 16:30** Coffee in the Exhibition
- 17:00 THOMAS MUELLER** Second harmonic generation in strained 2D semiconductors
- 17:15 ROMAN GORBACHEV** Fabrication of the next generation of devices
- 17:30 GIULIO CERULLO** Electron cooling and carrier dynamics
- 17:45 JURGEN SMET** Ultrafast diffusion and superdense ordering of lithium in bilayer graphene

18:00–19:30

POSTER SESSION 4

20:00–23:00

CONFERENCE DINNER

WELCOME RECEPTION: KURSAAL FOYER



20:00–22:00 MONDAY, 10 SEPTEMBER

The Graphene Week 2018 welcome reception will be open to all delegates. The reception will be held in the Kursaal Foyer, the most singular and emblematic spot of the conference centre, designed by the prestigious architect Rafael Moneo. The Kursaal Foyer stands out for its luminosity and its two large windows facing out towards the Cantabrian sea. A perfect spot to watch the sunset in September.

CONFERENCE DINNER: SAN TELMO MUSEUM



20:30–23:00 THURSDAY, 13 SEPTEMBER

The conference dinner will be held in the San Telmo Museum, located inside an old Dominican convent from the mid-16th century, situated in the Old Town of San Sebastian. The museum itself is the Basque Country's oldest museum. Opened in 1900 as a Historical, Artistic and Archaeological Museum, it was relocated to the Dominican convent in 1932. Today, it is reintroducing itself as a Museum of Basque Society and Citizenship.

The delegates will have the opportunity to visit part of the museum's permanent collection and to taste some of the region's world-recognised cuisine in a peaceful and historical setting.

FRIDAY 14 SEPTEMBER

08:30–14:30

HELPDESK

09:00–13:15

PLENARY SESSION – Chairs: Inês Goncalves and Ester Vazquez – Chamber Hall

09:00 **ARBEN MERKOÇI** Graphene-based biosensors

09:50 **HOSSAM HAICK** Stretchable and Multi-Functional Transistor with Intrinsic Self-Healing Properties for Biomedical Applications

10:25 **ULLA VOGEL** Inhalation toxicity of carbon-based nanomaterials

11:00 Coffee

11:30 **ALBERTO BIANCO** Functional graphene materials for therapy and imaging

12:05 **JOSÉ M. NAVAS** Interaction of graphene related materials and cellular structures: Alterations implications, and applications

12:40 **BENGT FADEEL** Safety assessment of graphene oxide: focus on the immune system

10:00–16:00

US-EU WORKSHOP ON 2D MATERIALS – Room 10A

10:00 **JOSHUA ROBINSON** Discovering, Creating, and Exploring Novel Atomically-Thin Materials and Heterostructures

10:15 **MARCO POLINI** Linear and non-linear hydrodynamic flow in graphene

10:30 **ROGER LAKE** One dimensional van der Waals materials

10:45 **ALEXANDER TARTAKOVSKI** Optics of TMDC heterostructures

11:00 Coffee

11:30 **ALESSANDRO TREDECUCCI** On-chip strain engineering platform for two-dimensional materials

11:45 **ERIC VOGEL** Two-dimensional Materials for Vertical Heterostructures

12:00 **ROBERT WALLACE** Contact interfaces and transition metal dielectrics

12:15 **PEIDE YE** 1D van der Waals Nanomaterials: Selenium and Tellurium

12:30 **JAMES HWANG** Wafer-scale fabrication of MoS₂ and PtSe₂ MOSFETs

12:45 **ERIC POP** Electrical, thermal and unconventional applications of 2D materials

13:15 Lunch and Closing Ceremony

14:00 **GROUP DISCUSSION** (2 hours) **Moderators:** Eric Pop, Joan Redwing, Angela Hight-Walker

13:15–13:30

CLOSING CEREMONY

13:15–14:30

LUNCH

US-EU WORKSHOP ON 2D MATERIALS

15:30–18:00 THURSDAY, 13 SEPTEMBER

10:00–16:00 FRIDAY, 14 SEPTEMBER

Co-organized by the United States' National Science Foundation (NSF) and Europe's Graphene Flagship, the 4th US-EU Workshop on 2D Materials provides a venue for discussing the common challenges and opportunities in this rapidly developing research area. The aim of the workshop is to learn about each other's work and to further the strong tradition of collaboration between the US and the European Union.

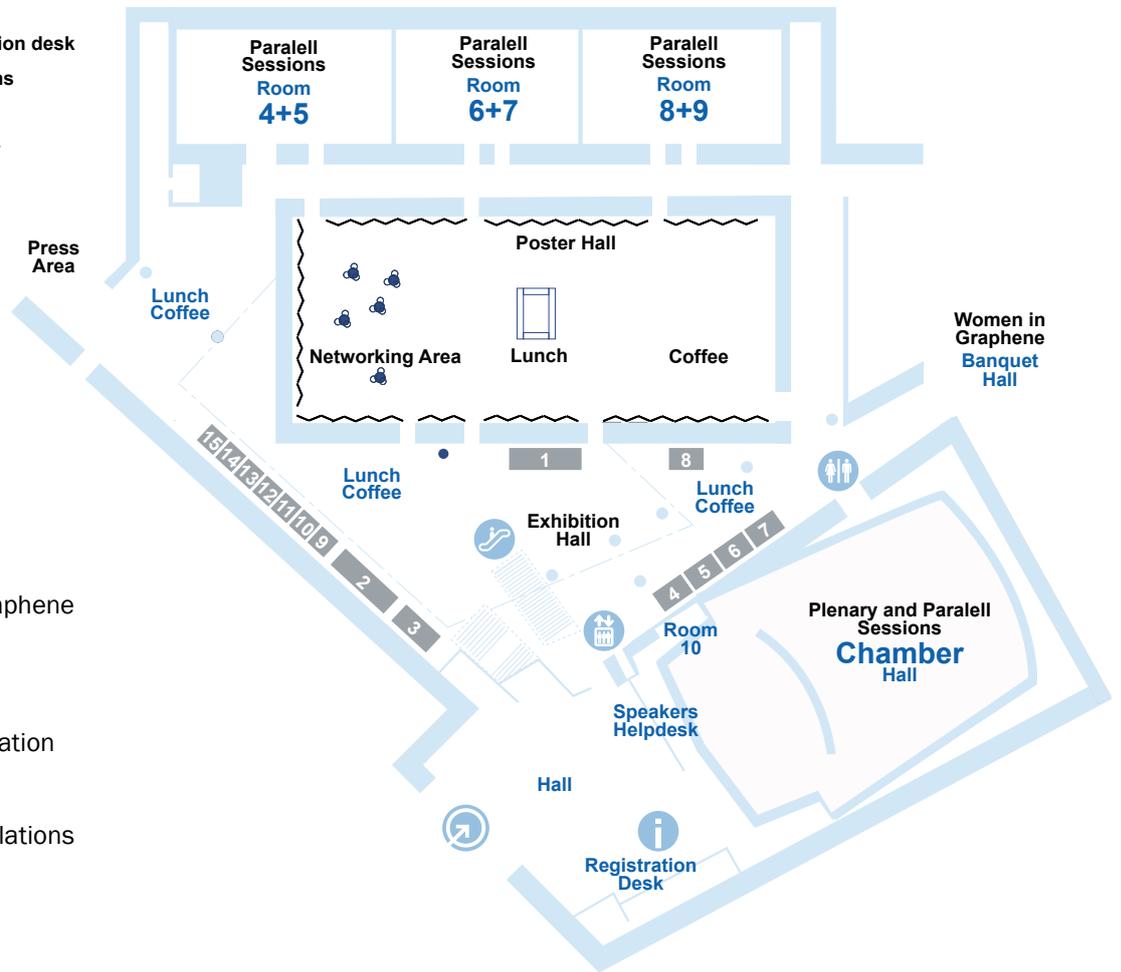


CONFERENCE MAP

- Registration desk
- Restrooms
- Lift
- Escalator

LIST OF EXHIBITORS

- 1 CIC nanoGUNE
- 2 Graphene Flagship
- 3 Thinky Corporation
- 4 Das-Nano
- 5 SIO Grafen
- 6 IOP Publishing
- 7 BeDimensional - IIT Graphene
- 8 neaspec
- 9 TECNALIA
- 10 CVD Equipment Corporation
- 11 AMO GmbH
- 12 Simune Atomistic Simulations
- 13 Graphmatech
- 14 Merck (Sigma-Aldrich)
- 15 Abalonyx



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