



GRAPHENE FLAGSHIP

GRAPHENE

23-28 MARCH 2015 KAPRUN, AUSTRIA

STUDY



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WELCOME



Chairs and organisers of the Graphene Study look forward to welcoming you to Kaprun for the Graphene Study 2015.

Kaprun, recognised as one of Austria's most magnificent natural landscapes, is hosting the second edition of the Graphene Study. This area boasts rugged low mountain ranges, secret valleys along with a combination of glaciers, mountains and lakes, and makes the region in Salzburger land absolutely unique.

We are convinced Kaprun offers great opportunities for fruitful scientific discussions that go beyond the educational programme of the school. Apart from the formal lectures and poster sessions, the school offers ample opportunities for private discussions and networking.



Welcome on board of the second edition of the Graphene Study.

REGISTRATION

On-site registration opens on Monday 23 March 2015 at 16:00. We expect all delegates to collect their badges and conference materials on Monday afternoon.

The desk is organised in alphabetical order by last name. Also, a help desk will be open from 8:00-8:30 and 16:30-17:00 throughout the event.

CHECK IN

Hours for check in are:

Check in – 17:00.

Check out – 10.00.

What is included in the conference fee?

- Conference materials and documentation.
- Admission to lectures (30 hours).
- Admission to mini-workshops (three workshops).
- Accommodation in shared bedroom.
- Full board service including breakfast, lunch or lunch box (to be pre-booked 24 hours in advance), dinner as well as morning and afternoon coffee-breaks.
- Admission to the 'Welcome On-Board!' reception on Monday 23 March 2015 at 19:00.
- Admission to the 'After Poster Party' on Wednesday 25 March at 21:30.
- Admission to the 'G(raphene) Slalom Race' on Thursday 26 March at 09:30.
- Admission to the 'Good Bye Study' farewell dinner on Friday 27 March at 19:00.

If you shall have any question about check in and on-site registration, arrival or accommodation details, please feel free to contact [Luciana Löberg](#), Event Manager, Graphene Flagship.

Luciana Löberg

luciana.loberg@chalmers.se

+46 31 772 32 79





PROGRAMME

The programme of the Graphene Study 2015 is tailored in a way to give delegates and lecturers opportunities for free discussions and knowledge exchange. Along with tutorial lectures, a series of mini workshops in small groups is planned to secure more direct contact between young and experienced researchers in the field.

All lectures are presented in the main seminar room at the JUFA Hotel. Delegates are invited to contribute with comments on research and tutorial lectures as 15 minutes are reserved for discussion after each lecture.

CHAIRS

Prof. Vladimir Falko, The University of Lancaster, UK (Work Package 3, Fundamental science of graphene and 2D materials beyond graphene)

Dr. Daniel Neumaier, AMO, Germany (Work Package 4, High Frequency Electronics)

Prof. Andrea Ferrari, The University of Cambridge, UK (Work Package 5, Optoelectronics)

Prof. Bart van Wees, University of Groningen, The Netherlands (Work Package 6, Spintronics)



Prof. Konstantin Novoselov, University of Manchester, UK

We encourage all attendees to arrive in Kaprun on Monday 23 March 2015 by 17:00 to participate in two lectures by the honoured speaker of the Graphene Study 2015, Prof. Konstantin Novoselov:

23 March

18:00–19:00 and 20:30–21:30.



LECTURERS

Alessandro Tredicucci, CNR Nano, IT

Andrea Ferrari, University of Cambridge, UK

Bart van Wees, University of Groningen, NL

Bernard Placais, École Normale Supérieure, FRA

Christoph Stampfer, RWTH Aachen University, GER

Daniel Neumaier, AMO, DE

Daniel Popa, University of Cambridge, UK

Emil Haldorson, CIP Professional Services AB, SWE

Frank Koppens, Institute of Photonic Sciences, ESP

Henrik Rosén, Chalmers Industriteknik, SWE

Ivan Vera Marun, University of Groningen, NL

Jari Kinaret, Chalmers University of Technology, SWE

Konstantin Novoselov, University of Manchester, UK

Luke Fleet, Nature Publishing Group, UK

Thomas Mueller, Vienna University of Technology, AT

Tony Heinz, Columbia University, US

Vladimir Falko, University of Lancaster, UK



Frank Koppens, Institute of Photonic Sciences, ESP



Daniel Neumaier, AMO, DE



Andrea Ferrari, The University of Cambridge, UK

TIME	DATE					
	Monday 23 March 2015	Tuesday 24 March 2015	Wednesday 25 March 2015	Thursday 26 March 2015	Friday 27 March 2015	Saturday 28 March 2015
07:00 - 08:00		BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
08:30 - 09:30		Introduction of the Graphene Flagship KINARET	Introduction into spintronics and graphene spintronics. P I WEES	Graphene van der Waals heterostructures FALKO	Design and fabrication of GFET based MMICs HABIBPOUR/ NEUMAIER	TMD-based photodetectors, light-emitters and photovoltaics MUELLER
09:30 - 10:30		Graphene and 2D materials quantum transport and spintronics. P I FALKO	Transport and electron scattering in graphene. P. I STAMPFER	G(raphene) Slalom Race	Graphene transistors - Process technology and its implication on the performance NEUMAIER	Active graphene devices for silicon photonic systems NEUMAIER
10:30 - 11:00		COFFEE BREAK	COFFEE BREAK		COFFEE BREAK	COFFEE BREAK
11:00 - 12:00		2D Semiconducting Materials HEINZ	Graphene nano photonics. P.II KOPPENS		Spintronics and thermoelectrics in graphene. P I VERA MARUN	Ultrafast photonics with 2D materials POPA
12:00 - 13:00		Mesoscopic transport in graphene STAMPFER	Transport and electron scattering in graphene. P. II STAMPFER		Noise in graphene devices PLACAIS	Graphene-based THz devices TREDICUCCI
13:00 - 14:00		LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
14:30 - 15:30		MINI WORKSHOP	MINI WORKSHOP	MINI WORKSHOP	Spintronics and thermoelectrics in graphene. P II VERA MARUN	
15:30 - 16:30		Bringing Research Results To Society: Innovation, Utilization & Intellectual Property HALDORSON & ROSEN	Publishing Graphene Papers In Nature Journals: How To Write & How To Submit FLEET	Graphene for ultrafast lasers POPA	Ballistic graphene devices PLACAIS	
16:30 - 17:00	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	
17:00 - 18:00		Graphene nano photonics. P.I KOPPENS	Graphene and 2D materials quantum transport and spintronics. P.II FALKO	Introduction to Raman Spectroscopy of Graphene and Layered Materials. P.I FERRARI	THz photonics TREDICUCCI	
18:00 - 19:00	Electronic and optoelectronic properties of 2D materials and their heterostructures. P. I NOVOSELOV	2D Semiconducting Materials and Heterostructures HEINZ	Introduction into spintronics and graphene spintronics. P II WEES	Introduction to Raman Spectroscopy of Graphene and Layered Materials. P.II FERRARI	Graphene-based photodetectors MUELLER	
19:00 - 20:30	WELCOME DINNER	DINNER	DINNER	DINNER	GOOD BUY STUDY! Farawell Dinner	
20:30 - 21:30	Electronic and optoelectronic properties of 2D materials and their heterostructures. P.II NOVOSELOV	POSTER SESSION I	POSTER SESSION II	PECHA KUCHA NIGHT		
21:30	FREE DISCUSSION	FREE DISCUSSION	AFTER POSTER PARTY			



MINI WORKSHOPS

BRINGING RESEARCH RESULTS TO SOCIETY: INNOVATION, UTILIZATION AND INTELLECTUAL PROPERTY

The translation of graphene into applications and ready to use technologies can be done in the business landscape where government bodies, knowledge institutes, start-ups, financiers and businesses are working together. As a part of this development the strengthening of innovation knowledge and increasing of business intelligence among young generation of researchers and engineers is prioritised by the Graphene Flagship. The innovation workshop gives an opportunity to understand different paths from research to societal benefit, to get an introduction of how to use an intellectual asset management, and learn more about intellectual property landscape around graphene and two-dimensional materials.

Tuesday 24 March at 14:30 by Henrik Rosén, Chalmers Industriteknik, Sweden, and Emil Haldorson CIP Professional Services, Sweden

PUBLISHING GRAPHENE PAPERS IN NATURE JOURNALS: HOW TO WRITE & HOW TO SUBMIT

Advances in research on graphene have been well represented on the pages of Nature journals over the past ten years. While Nature Publishing Group continue to look out for the most significant advances, the explosive growth of the field and the changing publishing landscape have modified the type and volume of submissions received and subsequently of editorial criteria.

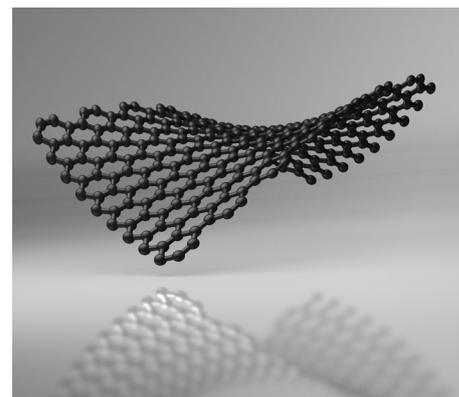
Dr. Luke Fleet, editor for Nature Materials, provides unique views on current trends in publishing in Nature journals.

Wednesday 25 March at 14:30 by Luke Fleet, Nature Publishing Group, UK

The scientific programme of the Graphene Study 2015 includes three mini workshops on several topics from engineering science to utilisation of science and IP management.



All mini workshops are held in the small conference room at the JUFA hotel. The number of seats is limited, please express your interest upon arrival at the venue.



GRAPHENE FOR ULTRAFAST LASERS

The workshop aims at addressing fundamental understanding of implementing graphene as a saturable absorber for ultrafast lasers, ranging from fabrication and integration techniques to the underlying physics and characterization and final design and assembling of an ultrafast laser.

Additionally a number of applications for graphene inks and graphene-based high-frequency electronics will be demonstrated: a paper poster that makes music, an electroluminescent display in the shape of a bendable transparent piano are on display.

Thursday 26 March at 14:30 by Daniel Popa, University of Cambridge, Cambridge Graphene Centre, UK

POSTER SESSION

The poster session is organised by the Graphene Flagship and the Nature Publishing Group. The Programme Committee is going to review posters and announce the poster session winner at the 'After Poster Party'.

Delegates who have submitted titles for poster presentation are requested to put up their posters during the afternoon coffee break or during the day's presentation.

The authors invited to present posters on **Tuesday 24 March 2015** are:

Poster number	Last name	First name	Title
1	Alcaraz Iranzo	David	Graphene Plasmonics
2	Banszerus	Luca	High mobility graphene by chemical vapor deposition
3	Black	Nicola	Doping variation in transferred CVD graphene studied with Kelvin probe force microscopy, Raman and differential reflection spectroscopy
4	Bloos	Dominik	Terahertz Properties of Graphene

Poster number	Last name	First name	Title
5	Cartamil Bueno	Santiago Jose	Large Array of Graphene Drumhead Resonators for Sensing Applications
6	Colomés	Enrique	Klein Tunneling with parabolic potentials. Improving the Ion/Ioff current ratio
7	Cosma	Diana	Strain-induced modifications of transport in gated graphene nanoribbons
8	Donatus	Halpaap	Raman spectroscopy as probe of nanometer-scale strain variations in graphene
9	Grady	Eldad	Graphene based pellicle for extreme UV lithography
10	Gurram	Mallikarjuna	Magnetotransport in graphene with self-assembled layers of magnetic molecules
11	Inglá Aynes	Josep	Spin transport in double-gated boron nitride encapsulated bilayer graphene
12	Jovell	Ferran	Graphite/Graphene contacts. An ab initio study
13	Kaverzin	Alexey	Modification of non-local transport properties of graphene via HSQ polymerisation
14	Laitinen	Antti	Electron-phonon coupling in suspended graphene: supercollisions by ripples
15	Leutenantsmeyer	Johannes Christian	Spin-transport in graphene on ferromagnetic insulators

The authors invited to present posters on **Wednesday 25 March 2015** are:

Poster number	Last name	First name	Title
16	Lozada-Hidalgo	Marcelo	Proton transport through one-atom-thick crystals
17	Omar	Siddhartha	Spin Relaxation in Graphene in the presence of Cobalt Porphyrin Molecules
18	Panchal	Vishal	Environmental tuning of local electronic properties of graphene nanodevices
19	Pasadas	Francisco	Electrostatics and drift-diffusion current model of bilayer graphene field-effect transistors
20	Posvyanskiy	Vladimir	Triplet excitations in graphene - based systems
21	Schwender	Jil	Mass sensing with carbon nanotube and graphene mechanical resonators
22	Shautsova	Viktoryia	Photo-excited hot carrier dynamics in graphene-metal plasmonic hybrid nanostructures
23	Simonetto	Enrico	Modeling of defects effects on sensitivity of Graphene Hall devices
24	Tóvári	Endre	Suspended graphene nanoribbons in the quantum Hall ferromagnetic regime
25	Wallbank	John	Resonant tunnelling in graphene/hBN heterostructures
26	Woods	Colin	Commensurate–incommensurate transition in graphene on hexagonal boron nitride
27	Völkl	Tobias	Direct measurement of the Spin-Hall-Effect in weakly hydrogenated graphene

Poster number	Last name	First name	Title
28	Yager	Tom	High mobility epitaxial graphene devices via aqueous ozone processing
29	Zhu	Mengjian	Josephson junctions based on ballistic graphene
30	Zihlmann	Simon	Transport of suspended graphene in the quantum hall regime

SOCIAL PROGRAMME

The academic programme of the school is tailored to give opportunities for free discussions to be held beyond lecture halls. There will be a table tennis hall next to the main lecture hall, and also sport activities to secure a good mood and excellent form for your brains and body.

Discussion can be also extended during the social activities:

Monday 23 March 2015 at 19:00

Welcome On-Board reception and dinner
JUFA Hotel, Kaprun

Wednesday 25 March 2015 at 21:30

After Poster Party and poster prize winner announcement
Pavilion Bar, Kaprun

Thursday 26 March 2015 at 09:30

G(raphene) Slalom Race
Kaprun Ski Area

Thursday 26 March 2015 at 20.30

Pecha Kucha Night
JUFA Hotel, Kaprun

Pecha Kucha Night is a presentation style in which 20 slides are shown for 20 seconds each - this is a great opportunity for delegates to share their experiences with the audience, even if each person is only allowed to talk for 6,40 minutes. We encourage delegates to participate and tell us about your scientific background, research interests, institution, etc.

Friday 27 March at 19:00

Good Bye Study farewell dinner
Dorfkrug Restaunt, Kaprun



Everyone, confident in downhill skiing, is welcome to compete for Mr and Misses G medals in G-slalom discipline. Others are invited to encourage G-sportsmen on the hill. More details to be provided upon arrival.

HOW TO GET TO KAPRUN



No matter if you arrive by car, train or plane, the journey to the venue is easier than you might think, and an experience in itself. For choices of transportation, please see the following information and/or go to: www.zellamsee-kaprun.com/en/service/arrival.

BY CAR

Kaprun is perfectly connected to the local traffic network. This, in combination with the breath taking Alpine panorama, turns travelling by car into a highly enjoyable sightseeing tour. Kaprun is a 2.5h drive from Munich, and a 1.5h drive from Salzburg.

FROM THE NEAREST RAILWAY STATION

Direct train to Zell am See brings you to the train station. Thence, a taxi or ski bus can take you straight to the JUFA hotel in Kaprun.

ZELL-AM-SEE, RAILWAY STATION

TAXI

Taxi 4 You
www.taxizell.at
info@taxizell.at
+43 664 33 44 888

SKI BUS (LINE 660 TO KAPRUN)

Line 660 Ski Bus
Bus stop in Kaprun 'JUFA'
Price 4€
Travel time 15 minutes
Frequency every 30 minutes and
every 60 minutes between 11:20 and 14:20

FROM THE NEAREST AIRPORTS

Salzburg Airport W.A. Mozart is well connected with Kaprun area by local transport or taxi service. We recommend you to plan a quick and easy journey to the Graphene Study 2015 headquarter by airport express shuttle or taxi though you can always consider local transport as well.

Please note that airport express and taxi services:

- Shall be pre booked 48 hours before arrival
- Online booking by credit card only
- On-site payment by cash only
- Require information about flight number and time of arrival
- On Saturday, plan your return considering transfer delays due to heavy traffic

BY AIRPORT EXPRESS

The best and quickest option is to pre-book a shuttle service Vorderegger, going directly from the Salzburg airport to Kaprun. Travel time is about 1h 35m. Price for one-way ticket - 40€ and for round trip 70€. Use the online booking form for reservation and payment:

<https://www.vorderegger.at/airportexpressbooking?l=en>

AIRPORT EXPRESS TO KAPRUN

08.00 – 09.35
11.00 – 12.35
15.00 – 16.35
18.00 – 19.25
22.00 – 23.20

AIRPORT EXPRESS FROM KAPRUN

05.45 – 07.15
08.15 – 10.00
12.15 – 14.00
15.15 – 17.00
17.45 – 19.30

BY TAXI

Taxi service can be a good solution for you if you are traveling in small groups up to six persons. Pre-book a mini bus taxi for 130€ for one-way trip and split the costs.

Taxi 4 You

www.taxizell.at

info@taxizell.at

+43 664 33 44 888

BY LOCAL BUS

Local busses can be considered as a cheap and convenient way of traveling to Kaprun. Bus Line 260 goes from the airport to Zell am See, and then continues to different destinations. Please note that you have to transfer to Line 660 (Ski Bus) in Zell-am-See to go to Kaprun.

BUS 260 TO ZELL-AM-SEE

Bus stop at the airport outside the main entrance

Bus stop in Zell-am-See: 'Postplatz'

Price €15 (one way ticket)

Travel time 1h 30 min

Frequency every hour

SKI BUS (LINE 660 TO KAPRUN)

Bus stop in Zell-am-See at the railway station

Bus stop in Kaprun 'JUFA'

Price €4

Travel time 15 minutes

Frequency every 30 minutes and every 60 minutes between 11.20 and 14.20

CONTACT

The team of the Graphene Flagship is happy to support you during the Graphene Study 2015. Feel free to contact us:

Elena Novoselova, Head of Dissemination

elena.novoselova@chalmers.se

Luciana Löberg, Event Manager

luciana.loberg@chalmers.se

Christophe Elehn, Deputy Head of Dissemination

christophe.elehn@chalmers.se

LIST OF DELEGATES

1. Abdollahi Shiramin, Leili - Ghent University
2. Alcaraz Iranzo, David - ICFO -The Institute of Photonic Sciences
3. Alexander, Koen - Ghent University (INTEC) / IMEC
4. Amit, Iddo - University of Exeter
5. Banszerus, Luca - II. Institute of Physics, RWTH Aachen University
6. Beccaria, Federico - Università degli Studi di Torino
7. Bettadahalli Nandishaiah, Madhushankar - University of Groningen
8. Black, Nicola - Imperial College London
9. Bloos, Dominik - Universität Stuttgart
10. Bonmann, Marlene - Chalmers University of Technology
11. Cartamil Bueno, Santiago Jose - TU DELFT
12. Christian, Mèganne - CNR
13. Colomés, Enrique - Universidad Autónoma de Barcelona
14. Cosma, Diana - Lancaster University
15. Danovich, Mark - Lancaster University
16. Elsayed, Mohamed - HFE / RWTH Aachen
17. Donatus Halpaap - 2nd Institute of Physics A, RWTH Aachen University
18. Fülöp, Bálint - Budapest University of Technology and Economics, Department of Physics
19. Ghareeb, Ahmed - HFE / RWTH Aachen
20. Grady, Eldad - Eindhoven University of Technology
21. Gurram, Mallikarjuna - University of Groningen
22. Hague, Lee - University of Manchester
23. Ingla Aynes, Josep - Physics of Nanodevices ZIAM University of Groningen
24. Jiménez, David - Universitat Autònoma de Barcelona
25. Jovell Megias, Ferran - Universitat Autònoma de Barcelona
26. Kaverzin, Alexey - Physics of Nanodevices, ZIAM, University of Groningen
27. Laitinen, Antti - Aalto University
28. Leutenantsmeyer, Johannes Christian - Physics of Nanodevices, University of Groningen
29. Lozada-Hidalgo, Marcelo - University of Manchester
30. Maxim, Krivenkov - Helmholtz-Zentrum Berlin
31. Mehew, Jake - University of Exeter
32. Montanaro, Alberto - Thales Research and technologies
33. Omar, Siddhartha - University of Groningen
34. Panchal, Vishal - National Physical Laboratory
35. Pasadas, Francisco - Universitat Autònoma de Barcelona
36. Perez Villar, Sofia - University of Sheffield
37. Posvyanskiy, Vladimir - Niels Bohr Institute

38. Şar, Hüseyin - Anadolu University
39. Sarra, Mhedhbi - IEMN
40. Schwender, Jil - ICFO-The Institute of Photonic Sciences
41. Shautsova, Viktoryia - Imperial College London
42. Simonetto, Enrico - Politecnico di Torino
43. Torres Alonso, Elias - Physics Department
44. Wallbank, John - Lancaster University
45. Verguts, Ken - IMEC and KU Leuven
46. Woods, Colin - University of Manchester
47. Völkl, Tobias - Universität Regensburg
48. Yager, Tom - Chalmers University of Technology
49. Zajac, Dawid - Politechnika Krakowska
50. Zhu, Mengjian - University of Manchester
51. Zihlmann, Simon - University of Basel

