

Flatlands Beyond Graphene

Program

June 17th-21st

Bremen - Germany

Monday 17th

Conference Registration (16:00h - 20:00h)

Welcome Reception (20:00h - 22:00h)

Tuesday 18th

Session I (08:30h - 13:10h)

Chairperson: Dr. Thomas Heine

08:30h - 08:45h Conference Opening (Prof. Dr. Thomas Heine and Jacobs University Provost)

08:45h - 9:25h Reshef Tenne (Keynote)

Inorganic nanotubes and fullerene-like nanoparticles: an update

09:25h - 9:50h Arend van der Zande

Properties, growth, and boundaries of atomically thin molybdenum disulfide

09:50h - 10:15h Mingsheng Xu

Unique synthesis and characterization of two-dimensional materials

10:15h - 10:30h Claudia Backes

Sorting and analysis of liquid phase exfoliated MoS₂ by band sedimentation centrifugation

10:30h - 10:45h Jianbin Xu

Interface engineering for graphene synthesis and devices

Coffee Break (10:45h - 11:15h)

Chairperson: Dr. Martha Audiffred

11:15h - 11:40h Wolfgang Bensch

Transition metal dichalcogenides: synthesis, properties and intercalation

11:40h - 12:05h Manish Chhowalla

Chemically exfoliated transition metal chalcogenides as hydrogen evolution catalysts

12:05h - 12:30h Jenwoo Cheon

Chemical Synthesis and Reactivity Study of 2D TMC Nanoparticles

12:30h - 12:55h Marika Schleberger

Defect creation in two-dimensional systems with energetic ions

12:55h - 13:10h Beatriz Mendoza-Sanchez

Synthesis, processing and investigation of 2D-nanosheets of metal oxides for their potential application as supercapacitor/battery electrode

Lunch (13:10h - 14:30h)

Session II (14:30h - 19:00h)

Chairperson: Dr. Veit Wagner

14:30h - 14:55h Francois Peeters

Strained MSe_2 ($M = Mo, W$) atomic layers: electronic and phonon properties

14:55h - 15:20h Paola Barbara

Electron-hole transport and photovoltaic effect in gated MoS_2 Schottky junctions

15:20h - 15:45h Janice L. Musfeldt

Discovery of Burstein-Moss shift in Re-doped MoS_2 nanoparticles

15:45h - 16:00h Jan-Ole Joswig

Simulation of the nanoindentation process of monolayer MoS_2 sheets

16:00h - 16:15h Hannu-Pekka Komsa

Electronic structure and optical properties of transition metal dichalcogenide heterostructures

16:15h - 16:30h Zhen Zhu

Electronic and transport properties of 2D graphene-haeckelite hybrid structures

Coffee Break (16:30h - 17:00h)

17:00h - 17:25h Janina Maultzsch

Optical spectroscopy on single- and few-layer MoS_2

17:25h - 17:50h Dragan Mihailovic

Ultrafast switching to hidden states in nano-layers of transition metal chalcogenides

17:50h - 18:15h Hai-Zhou Lu

Weak localization and antilocalization in topological insulators and MoS_2

18:15h - 18:30h Matteo Calandra

Charge-density wave and superconductivity in bulk and single layer transition metal dichalcogenides

18:30h - 18:45h Andres Castellanos-Gomez

Large and tunable photo-thermoelectric effect in single-layer MoS_2

18:45h - 19:00h Michele Amato

Understanding the role of stacking faults in the dielectric response of hexagonal boron nitride

Poster Session (20:00h - 22:00h)

Beer and Pretzels will be served.

Wednesday 19th

Session III (08:45h - 13:10h)

Chairperson: Dr. Maya Bar-Sadan
08:45h - 9:25h Andras Kis (Keynote)

Atomically thin MoS₂ - electrical transport properties, devices and circuits

09:25h - 9:50h Jun Lou

Synthesis, Characterization and 2D Engineering of Atomic Layers

09:50h - 10:15h Mauricio Terrones

From N-Doped Graphene to WS₂ Monolayers and More

10:15h - 10:30h Damien Hanlon

Molybdenum trioxide nanobelts produced by liquid phase exfoliation

10:30h - 10:45h Tobias Korn

Low-temperature optical spectroscopy of single- and few-layer MoS₂

Coffee Break (10:45h - 11:15h)

11:15h - 11:40h Boris Yakobson

Flaws in the fLaternity: point defects, dislocations, grain boundaries

11:40h - 12:05h R.J. Dwayne Miller

Atomically Resolved Dynamics: 2D Science in Action

12:05h - 12:30h Michael Heuken

CVD of 2D materials for Semiconductor Industry

12:30h - 12:55h Jannik C. Meyer

Exploring 2D materials by high-resolution electron and scanning probe microscopy

12:55h - 13:10h Tsachi Livneh

High pressure - low temperature Raman scattering in 2H-MoS₂

Lunch (13:10h - 14:30h)

Session IV (14:30h - 19:05h)

Chairperson: Dr. Lothar Houben

14:30h - 14:55h Amy Liu

Phonon-mediated superconductivity in single-layer molybdenum disulfide

14:55h - 15:20h Sibylle Gemming

Size-effects in 2D Transition Metal Chalcogenides

15:20h - 15:45h Sayeef Salahuddin

Electronic and Optoelectronics with 2D semiconductor heterostructures

15:45h - 16:10h Gotthard Seifert

Defects and edges in metal chalcogenide layers

16:10h - 16:35h Frank Schwierz

The potential and prospects of transition metal dichalcogenide transistors

Coffee Break (16:35h - 17:05h)

17:05h - 17:30h Udo Schwingenschlogl

Electronic structure of (modified) transition-metal dichalcogenides

17:30h - 17:55h Valeria Nicolosi

Liquid-phase processing of novel 2D materials: towards large scale production

17:55h - 18:20h Francesco Zerbetto

Modelling the stability, dynamics and lubrication of MoS₂

18:20h - 18:35h Michele Buscema

Photoluminescence of MoS₂: the effect of the substrate

18:35h - 18:50h Emmanuel Stratakis

Laser photochemical reduction and doping of graphene oxide for organic electronics

18:50h - 19:05h Oriol Lopez Sanchez

Ultrasensitive photodetectors based on monolayer MoS₂

Conference Banquet (20:00h - 22:30h)

Thursday 20th

Session V (08:45h - 12:15h)

Session Chairperson: Dr. Agnieszka Kuc

08:45h - 9:10h Yuri Gogotsi

MXenes - Two-Dimensional Transition Metal Carbides and Carbonitrides

09:10h - 9:35h Alessandro Molle

Structural and chemical stabilization of epitaxial silicene

09:35h - 10:00h Georg S. Duesberg

Electronic properties of exfoliated and CVD grown Transition Metal Dichalcogenides

10:00h - 10:15h Igor Popov

Graphene beyond graphene: Proximity induced topological state in graphene

10:15h - 10:30h Henrik Pettersson

A comparative study of quick and simple methods for thickness measurement of graphene

10:30h - 10:45h Jianhua Gao

Single- and few-layer graphene growth on Pt(111) substrate

Coffee Break (10:45h - 11:15h)

11:15h - 11:30h Yinghe Zhang

Study of carbon-hydrogen bond on the microstructure of ball-milled graphite

11:30h - 11:45h Ossi Lethinen

MoS₂ monolayer protected from electron radiation damage in a graphene sandwich

11:45h - 12:00h Grando Stroppa

Single dopant atom detection on complex layered materials

12:00h - 12:15h Ronan Smith

Large scale exfoliation of inorganic layered compounds in aqueous surfactant solutions

Conference Excursion (12:15h - 18:00h)

Box lunch will be given.

Friday 21st

Session VI (08:45h - 13:25h)

Chairperson: Dr. Pere Miro

08:45h - 9:25h Peide Ye (Keynote)

MoS₂ MOSFETs: Dielectrics, Metal Contacts and Scaling

09:25h - 9:50h Quig Chen

The electronic and photoelectronic properties of WS₂ nanotubes

9:50h - 10:15h David Tomanek

Happy marriage of 2D nanostructures with the 3D world

10:15h - 10:30h Vivek Pachauri

Two dimensional electrical devices based on electrochemically exfoliated Molybdenum disulfide

10:30h - 10:45h Rudolf Bratschitsch

Photoluminescence and raman spectroscopy of monolayer MoS₂, MoSe₂, and WSe₂

10:45h - 11:00h Violeta Simic-Milosevic

Joule-Thomson SPM for in situ sample analysis in extreme environments

Coffee Break (11:00h - 11:30h)

Chairperson: Prof. Dr. Thomas Heine

11:30h - 11:55h Andrea C. Ferrari

Raman Spectroscopy in Layered Materials

11:55h - 12:10h Zhixian Zhou

Improved carrier mobility in few-layer MoS₂ field-effect transistors with ionic-liquid gating

12:10h - 12:25h Arunvinay Prabakaran

Novel chalcogenide nanostructure

12:25h - 12:40h Dominik Lembke

Breakdown of high-performance monolayer MoS₂ transistors

12:40h - 12:55h Daniel Badali

Ultrafast production of 2D materials: solvated electron mediated photoreduction

12:55h - 13:10h Ravi Shankar Sundaram

Photodetection and electroluminescence in single layer MoS₂

13:10h - 13:25h Concluding Remarks (Prof. Dr. Thomas Heine)
