

Summer School 2022

Synthetic Two-Dimensional Materials

Collaborative Research Centre (CRC) 1415
Dresden // 19 – 23 September 2022
Hotel Ininside Melia Dresden, Salzgasse 4, 01067 Dresden

Invited Speakers

Speaker	Lecture Title
Prof. Mircea Dincă	“Surprising Properties of 2D Metal-Organic Frameworks”
Prof. Xinliang Feng	“Advances in Organic 2D Crystals – On-Water Surface Chemistry and Synthesis”
Prof. Steven De Feyter	“On-Surface Synthesis of Synthetic Two-Dimensional Materials at the Liquid-Solid Interface: A Close-Up with Scanning Probe Microscopy”
Prof. Gianluca Fiori	“Two-Dimensional Materials for Electronic Applications”
Dr. Dorothea Golze	“Accurate Prediction of Spectroscopic Properties of 2D Materials”
Prof. Thomas Heine	“On Structural and Electronic Topology Relations on One and Two Dimensions”
Prof. Andreas Hirsch	“Chemical Patterning of Graphene and Inorganic 2D-Materials”
Prof. Donglin Jiang	“Covalent Organic Frameworks – The Art for Designing Organic Materials”
Prof. Axel Lubk	“Probing Symmetries, Structure, Potential and Electronic Properties of 2D Materials with Transmission Electron Microscopy Techniques”

Invited Speakers

Speaker	Lecture Title
Prof. Sabine Maier	"On-Surface Synthesis: A Bottom-Up Strategy to Low-Dimensional Carbon Structures"
Prof. Janina Maultzsch	"Optical Spectroscopy for Understanding 2D Materials and their Heterostructures"
Prof. Prineha Narang	"NarangLAB: Materials Theory at Harvard"
Prof. Zdeněk Sofer	"Monoelemental 2D Material Chemistry and Applications"
Prof. Christof Wöll	"Architected Multifunctional, Hierarchical Molecular Assemblies: The SURMOF Approach"

Program

Time	Monday - Sep. 19 th -	Tuesday - Sep. 20 th -	Wednesday - Sep. 21 th -	Thursday - Sep. 22 th -	Friday - Sep. 23 th -			
9:00					Lecture 13 Prof. Gianluca Fiori			
9:30								
10:00					Lecture 1 Prof. Andreas Hirsch	Lecture 5 Prof. Janina Maultzsch	Lecture 9 Prof. Xinliang Feng	Lecture 14 Prof. Thomas Heine
10:30								
11:00					Lecture 2 Prof. Sabine Maier	Lecture 10 Prof. Zdeněk Sofer	Summary, Award & Good Bye	
11:30								
12:00					Lunch - Restaurant	Lunch - Restaurant	Lunch - Restaurant	Farewell Snack
12:30								
1:00	Welcoming Coffee & Registration	Lecture 3 Prof. Mircea Dinca	Lecture 6 Prof. Steven De Feyter	Lecture 11 Prof. Christof Wöll				
1:30								
2:00	Opening	Lecture 4 (ONLINE) Prof. Donglin Jiang	Lecture 7 Dr. Dorothea Golze	Lecture 12 Prof. Axel Lubk				
2:30								
3:00	Workshop „Get Connected! Networking for Scientists“ Dr. Stephanie Rohac	Coffee Break	Coffee Break	Coffee Break				
3:30								
4:00		Poster Session (I)	Lecture 8 Prof. Prineha Narang	Poster Session (II)				
4:30			Break					
5:00			Social Activity Visit of church „Frauenkirche“ & sightseeing tour					
5:30								
6:00								
6:30								
7:00				Dinner - Restaurant				

Posters – Session I

Tuesday, 20 September 2022, 3:30 – 5:30 PM

Participant	Poster Title
Filippo Giovanni Fabozzi	“On-Surface Synthesis of Vinylene-Linked 2D Polymer at the Solid-Liquid Interface”
Zhiyong Wang & Alina Müller	“On-Water Surface Synthesis of Charged Two-Dimensional Polymers”
Zhinan Fu	“Electric Field Induced 2D Polymerization at the Solution-Solid Interface”
Rahul Sasikumar	“Multilevel Nanoscale Chemical Patterning of Graphite”
Tomasz Wozniak	“Electronic Properties of van der Waals Crystals Under Hydrostatic Pressure”
Mohammadreza Daqiqshirazi	“Strain Engineering In Transition Metal Dichalcogenides Monolayers”
Ankita De	“Chemical and Solvent Assisted Exfoliation of 2D Covalent Organic Frameworks Towards Processable Nanosheets for Oil-Water Separation”
Sezer Seckin	“Study of 2D Materials by Spectroscopic Methods”

Posters – Session I

Tuesday, 20 September 2022, 3:30 – 5:30 PM

Participant	Poster Title
Ying-Ying Zhang	“The Influence of Stacking on Properties of Layered COFs”
Ekin Esme Bas	“Accurate Prediction of Vibrational Spectra from Ab-Initio MD”
Albrecht Wöntig	“Two-Dimensional Conjugated Polymers <i>via</i> HWE Polycondensation Reaction”
Semyon Mazheika	“Electrocatalysis of the Oxygen Reduction Reaction on Titanium Dioxide Films Modified with Noble Metal Nanoparticles”
Subakti Subakti	“Phase Reconstruction: From h-BN to WSe ₂ ”
Anupam Prasoon	“On-Water Surface Site-Selective Programmable Chemical Reaction”
Yannan Liu	“2D COFs for Multi-Valent Ion Battery”
Yamei Liu	“Thiophene-Based Semiconducting 2D Conjugated Polymers”

Posters – Session II



Thursday, 22 September 2022, 3:30 – 5:30 PM

Participant	Poster Title
Jianjun Zhang	“Layer-Oriented 2D Conjugated Metal-Organic Framework Films Enabling Directional Charge Transport”
Ye Yang	“On-Water Surface Synthesis of Crystalline Mechanical-Interlocked Monolayer 2D Polymer Film”
André Knapp	“Wrinkling Metrology and Strain Engineering of 2D Materials”
Xiaohui Liu	“2D Ionic COF Membranes for High-Performance Osmotic Energy Conversion”
Karen Garcia Alvarez	“Boron Chalcogenide-Based Covalent Organic Frameworks”
Mingchao Wang	“Metal-Phthalocyanine-Based 2D Conjugated MOF Electrocatalysts”
Hyejung Yang	“Electrochemical Exfoliation of 2D Materials”

Posters – Session II

Thursday, 22 September 2022, 3:30 – 5:30 PM

Participant	Poster Title
Tim Naumann	“On-Surface Synthesis of Kekulene and Isokekulene”
Naveen Harindu Hemasiri Bastian Waduge	“2D TMDs: As Interfacial Layer to Promote Photo-Induced Charge Transfer Dynamics in Perovskite Solar Cells”
Antonino Cucinotta	“Expression of Chirality in Self-Assembled Molecular Networks Induced By Metal Coordination and Host-Guest Interactions”
Nikolaj Lopatik	“Solid-State NMR Investigations of 2D Materials”
Shaik Ghouse & Ruyan Zhao	“Metal-Phthalocyanine-Based Pyrazine-Linked Ladder-Type 2D Conjugated Polymers”
Nina Vankova	„Electronic Structure of In-MOFs with Different Metalloporphyrin Linkers: A Theoretical Study“
Puja Singhvi	“Electric Field Enforced Unidirectional Motion of Exciton for Enhanced Solar Cell Efficiency”