

# PHD COURSE

## Atomically thin 2D Materials: Advances and challenges



2D-TECH

### GOAL

Provide an overview of **2D material-based research**, in particular covering the research expertise of Chalmers. The course will cover five focus areas of the Graphene/2DTECH Centre at Chalmers, including fundamentals, quantum devices, electronics, optoelectronics, spintronics, multi-functional composites, energy, and bio-applications.

### STRUCTURE

The course is in the **third study period ((22 January – 19 March 2025))**, will consist of 16 lectures from experts in 2D materials research from different fields. **(7.5 credit points)**.

### TEACHERS

Saroj Dash, Ermin Malic/Joshua Thompson, Timur Shegai, Mikael Fogelström, Samuel Lara Avila, Andrew Yankovich, Avgust Yurgens, Xiaoyan Zhang, Andrei Vorobiev, Johan Liu, Johan Ek Weis, Zhenyuan Xia, Ivan Mijakovic

### CONTENTS

#### 2D materials

Fundamentals of Graphene, Semiconductors, Quantum Materials, 2D van der Waals heterostructures and composites.

#### 2D material characterization

Optics & non-equilibrium dynamics, electronic transport, quantum and spin transport, microscopy, spectroscopy.

#### 2D materials applications

Electronics, Optoelectronics, Quantum Devices, Spintronics, Energy storage, Thermal management, Multi-functional composites, Biomedical applications.

### REGISTRATION

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