

We are a young, innovative university in the middle of the Metropole Ruhr. Excellent in research and teaching, we think in terms of possibilities instead of limits and develop ideas with a future. We live diversity, promote potential, and are committed to educational equity worthy of the name.

Are you interested in participating in cutting-edge interdisciplinary research, strengthening your resume with professional and technical skills, and exploring the scientific and cultural diversity in Europe and North America? The graduate training program in *Scalable 2D-Materials Architectures (2D-MATURE)* may be the opportunity you're looking for!

The **DFG International Research Training Group (GRK 2803) Scalable 2D-Materials Architectures (2D-MATURE): Synthesis and Processing, Characterization and Functionality, Implementation and Demonstration** is currently searching for the second cohort of PhD candidates starting in Spring/Summer 2025. This program is an international collaboration between the University of Duisburg-Essen (UDE) / RWTH Aachen University (RWTH, both in Germany) and the University of Waterloo (UW, Canada). Part of the international qualification within the 2D-MATURE is a 6–8 month research stay in Canada.

The **research focus** of 2D-MATURE is on development of scalable synthesis and processing routes for 2D materials, understanding interface-controlled functionality in realistic architectures, and demonstration of showcase applications, like light emitters, light sensors, supercapacitors, and batteries. Research and training tasks will be carried out by a collaborative and interdisciplinary team from electrical, mechanical, and chemical engineering, as well as from physics and chemistry, with the intention to bring promising new 2D materials out of the laboratory and into the marketplace.

2D-MATURE invites applications for

**13 positions for PhD candidates (f/m/d)
(TV-L 13, 100 %)**

in the **research areas** of

- synthesis and processing of scalable 2D materials;
- analysis and modeling of their functionality in realistic architectures; and
- implementation of these materials in optoelectronic and energy storage devices.

A subset of these positions will be for a “cotutelle” between UDE and UW, in which the candidates will spend equal time at UDE and UW.

Your profile

- you are a talented and enthusiastic candidate with high interest in the research topic of 2D-MATURE
- you have abilities for problem-solving and independent work
- your previous professional history fits to the research tasks of 2D-MATURE
- your (expected) Master's degree has very good marks in a relevant subject area

We offer

- opportunity to conduct high-level, interdisciplinary research in a stimulating environment
- international exchange
- interdisciplinary, international, and intersectoral training
- regular supervision and mentoring
- family friendliness through childcare services for your children
- counselling for family care responsibilities
- a wide range of further and advanced training programmes, individual induction training
- excellent public transport connections and free parking spaces
- attractive sports and health programmes (university sports)

Start	Spring/Summer 2025
Duration	42 months (initially until 2027-09-30, extension thereafter)
Working Time	100 per cent of a full-time position (part-time employment is possible)
Application deadline	2024-12-31

Interested candidates should fill in the application form available at www.2d-mature.org and send it together with a cover letter, a curriculum vitae, a copy of all university degrees and other certificates in a single pdf-file stating the reference number 674-24 to gerd.bacher@uni-due.de. Please mention in your application which projects and principal investigators provide the best match with your background and interest.

Additional PhD positions and positions for a thesis-based Master of Applied Science are available at UW in Canada. Please contact Prof. Dr. Michael Pope (UW, michael.pope@uwaterloo.ca) for details.

For more detailed information on the program and the application procedure please refer to www.2d-mature.org. Applicants are encouraged to contact the spokespersons in case of any questions: Prof. Dr. Gerd Bacher (UDE, gerd.bacher@uni-due.de) and Prof. Dr. Michael Pope (UW, michael.pope@uwaterloo.ca).

The participating institutions view equity and diversity as an integral part of academic excellence and are committed to accessibility for all students and employees. All candidates will be considered, although applications are particularly encouraged from women and under-represented groups. In accordance with German state equality legislation, women with equal qualifications will be given priority. People with disabilities are also encouraged to apply (see Section 2 Paragraph 3 of the German Social Code, SGB IX.)

