

iMOS

International Master Molecular Sciences – Spectroscopy and Simulation

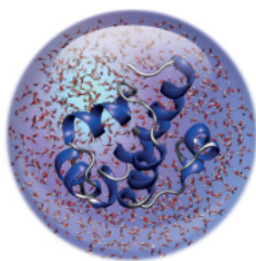
Offered by the Faculty of Chemistry and Biochemistry at RUB, iMOS offers you the unique chance to acquire and to apply in practice cutting-edge skills in theoretical and spectroscopic techniques in the fields of molecular chemistry, biochemistry, and physics.

Quick Take:

- 2-Year Program
- in English
- Begins every Winter Semester (1. October)

- Prerequisites:
10 ECTS in mathematics and
8 ECTS in theoretical chemistry and/or spectroscopic techniques and/or quantum mechanics

- Qualify for your funded doctoral thesis in Germany
- 1.5 GPA? Fast-track option for outstanding students:
Start your doctoral work after only one year!



Apply Online by June 15th

www.rub.de/imos



For You?

Tailored for students of

- Chemistry
- Physics
- Mathematics
- Biochemistry
- related Engineering fields

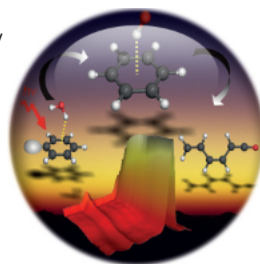


We are looking for students who have a passion for chemical sciences and wish to work in an international, interdisciplinary environment. Courses are taught by members of the following divisions:

- Physical Chemistry
- Theoretical Chemistry
- Physics
- Biophysical Chemistry
- Physical - Organic / Inorganic / Analytical Chemistry
- Centre for Advanced Materials Simulation (ICAMS)
- Lasers and Photonics

iMOS Scope

- Earn cutting-edge skills in theoretical and spectroscopic techniques
- Gain deep insights into molecular physics, chemistry, and biochemistry
- Learn how to develop and solve scientific questions by employing suitable theoretical and experimental methods
- Comprehensive student support
- Low semester fees fund your transit pass, bicycle rentals, and more
- Three-month international internship
- Track into Ph.D. study or industry



International Internship - 3rd Semester

This will be organized and co-financed by the program.

Our Research Network

Institution	Institution
 Cornell University, USA	 University of California Berkeley, USA
 Ecole Normale Supérieure Paris, France	 University of California Irvine, USA
 ETH Zürich, Switzerland	 University of California Los Angeles, USA
 Indian Institute of Science Bangalore, India	 University of California Santa Barbara, USA
 Indian Institute of Technology Kanpur, India	 University of Cambridge, UK
 National Institutes of Natural Sciences, Japan	 University of Illinois at Urbana Champaign, USA
 Purdue University, USA	 University of Nottingham, UK
 University of Pennsylvania, USA	 Seoul National University, Korea
 Radboud University Nijmegen, The Netherlands	 Weizmann Institute of Science, Israel
 University College London, UK	 University of Vienna
 Yale University, USA	 Yale University, USA

iMOS Curriculum

6 Required Modules

Dynamics and Simulation *
Concepts of Spectroscopy 1 *
Concepts of Molecular Chemistry 1
Electronic and Molecular Structure Theory *
Concepts of Spectroscopy 2 *
Theoretical Spectroscopy

Choose 3 Elective Modules

Statistical Physics and Thermodynamics
Biomolecular Simulation
Concepts of Molecular Chemistry 2
Methods of Structural Analysis
Biophysical Chemistry
Scientific Programming Methods for Chemists
Concepts of Quantum Mechanics

3rd Semester

Focal Point Practical - 10 weeks training in a research group of your choice
International Course - three-month internship

4th Semester

Master's Thesis

Note: Each Module contains weekly Lectures and Exercises. In addition, **four** * modules contain **hands-on lab practicals** in the first year.



FURTHER SCHOLAR OPPORTUNITIES

Undergraduate Exchange

- Your introduction to the field of Solvation Science through networking, study, and research
- For Bachelor students with at least one year of subject specific coursework
- Your 2-3 month research stay includes participation in the Summer School Solvation Science
- Apply between October and January



International Student Challenge

- For motivated Master or PhD students with a specialization in natural sciences
- Submit your research proposal to win a 3-month research stay at RESOLV
- Apply now! www.solvation.de



RUHR-UNIVERSITÄT BOCHUM
FACULTY OF CHEMISTRY AND BIOCHEMISTRY

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Molecular Sciences - Spectroscopy and Simulation
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www.rub.de/imos
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University Alliance Ruhr

- A regional network for the universities at Bochum, Dortmund, and Duisburg-Essen supporting
- 110,000 students
- 15,000 international students
- 8,000 researchers
- 800 partnerships with universities in 130 countries
- with an annual budget over 1.1 billion euros

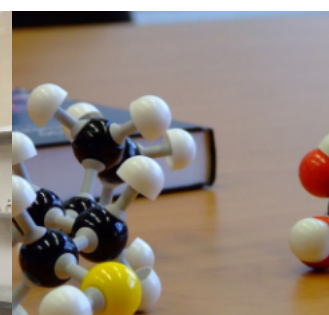
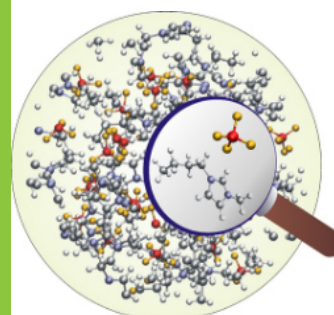


Bochum in the Heart of Metropolis Ruhr

- Modern cultural, scientific, and technological area
- High standard, lower cost of living
- Eleven metropolitan cities
- 5.2 million people
- 20 universities
- Enjoy thousands of leisure activities like festivals, concerts, and sports

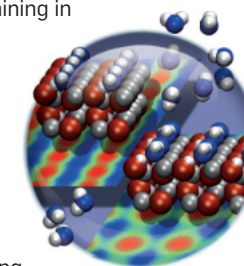
Ruhr-Universität Bochum

"RUB" is one of Germany's leading research universities. It draws its strengths from both the diversity and the proximity of many different scientific disciplines on a single, coherent campus. This highly dynamic setting enables students and researchers to work across traditional boundaries of academic subjects and faculties. The range of cross-disciplinary networks include the RUB Research School, two German Clusters of Excellence, and RUBiss for international student support. The Ruhr-Universität is a vital institution in the Metropolis Ruhr and hosts about 34,000 students and about 4,700 staff.



Work Perspectives

Germany is one of the world's leaders in applied optical technologies, chemistry and pharmacy. There exist excellent opportunities for alumni with a top-level education and training in spectroscopy and microscopy, as well as simulation techniques.



Ruhr Explores Solvation

RESOLV @ RUB provides a unifying framework for understanding and predicting solvent processes at Ruhr-Universität Bochum. Many of the iMOS instructors are affiliated with this Cluster of Excellence. Find out more about the doctoral program and research opportunities:
www.solvation.de



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RUB



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Molecular Sciences

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