International Internship
- Start your first international research project
- Visit one of the world’s top institutes in the fields of molecular sciences, spectroscopy, and simulation
- Publish your first scientific paper together with internationally recognized top researchers
- Gain international experience at a very early stage in your career
- Earn leadership qualities in multicultural, interdisciplinary, high profile research teams
- Your internship will be organized and co-financed by the university

Main Destinations close by
- Kemnade See 5 minutes
- Düsseldorf 0.5 hour
- Cologne 1 hour
- Berlin 4 hours
- Amsterdam 3 hours
- Brussels 3 hours
- Luxembourg 3 hours
- Paris 6 hours
- Prague 7 hours
- North Sea 3 hours

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
- 30 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.

International Master’s Program
Molecular Sciences - Spectroscopy and Simulation

Faculty of Chemistry and Biochemistry
Solvation Science @ RUB
University Alliance Ruhr
What we offer:

- Comprehensive student support
- Low semester fees fund your unlimited regional transit pass, bicycle rentals, available German and English language courses and more
- Three-month international internship
- 2nd year: opportunity to apply for paid scientific student jobs
- Track into Ph.D. study
- Active research environment with internationally renowned scientists

We are looking for students who have a passion for science and wish to work in an international environment.

For You?

Tailored for students of
- Chemistry
- Physics
- Mathematics
- Biochemistry
- related Engineering fields

We are looking for students who have a passion for science and wish to work in an international environment.

What skills do you need?

This highly competitive program relies on your skills in quantum mechanics, mathematics, physics, and chemistry. Basic knowledge of classical mechanics and thermodynamics / statistical mechanics is required.

You have already learned:
- Schrödinger’s equation and wave functions
- Hamiltonian operator
- real and complex valued vector spaces, matrices
- basis set transformations, partial differentiation
- integration over arbitrary dimensional space
- basic statistical entities like distributions, averages, data regression and hypothesis tests.

The course curriculum is designed to be accessible for students who have completed their undergraduate chemistry degree at RUB and elsewhere.

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.

iMOS Curriculum (120 CPs*)

1st Semester (28 or 33 CPs)
- Concepts of Quantum Mechanics**
- Statistical Physics and Thermodynamics**
- Dynamics and Simulation (+ Practical)
- Concepts of Spectroscopy 1 (+ Practical)
- Concepts of Molecular Chemistry 1
- Biomolecular Simulation**

2nd Semester (28 or 33 CPs)
- Electronic and Molecular Structure Theory (+ Practical)
- Concepts of Spectroscopy 2 (+ Practical)
- Theoretical Spectroscopy
- Concepts of Molecular Chemistry 2**
- Methods of Structural Analysis**
- Fundamentals of Magnetic Resonance**
- Scientific Programming Methods for Chemists**

3rd Semester (28 CPs)
- Hands-on training in a research group of your choice
- International Course (three-month internship)

4th Semester (30 CPs)
- Master’s Thesis

*: CPs means credit points in ECTS
**: Three of seven elective courses are required for graduation.

Apply now:

- International students: online application at www.rub.de/imos by June 15th
- Submit your academic certificates
- An English language certificate may be needed if your bachelor’s degree was conducted in another language
- Fast-track option - may apply via iGSS at RESOLV