

## UNIVERSITY OF DUISBURG-ESSEN:

Information for Applicants  
for the W1-Professorship (with Tenure Track)

"Lipidomics"

in the Faculty of Chemistry in a joint call with  
the Leibniz-Institut für Analytische Wissen-  
schaften (ISAS)

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## **I. THE UNIVERSITY OF DUISBURG-ESSEN**

*Offen im Denken! We are one of the youngest universities in Germany and think in possibilities rather than within limits. In the middle of the metropolitan Area Ruhr, we develop ideas for the future at eleven faculties. We are strong in research and teaching, living diversity, promoting potentials and committed to an educational justice that deserves the name.*

The University of Duisburg-Essen (UDE) offers a wide range of subjects, from the humanities, social sciences and educational sciences to economics and engineering, natural sciences and medicine. Since its foundation in 2003, the UDE has developed into a globally recognized research university. This is documented by the top positions in international rankings that have now been achieved. For example, UDE ranks third in the world in terms of the performance of the best universities founded after the turn of the millennium. In the Times Higher Education Ranking, it ranks 13th in the top 150 international universities that are under 50 years old.

### **Profile focus**

The UDE offers a broad range of scientific disciplines including, among others, the interdisciplinary profile areas of nanosciences, biomedical sciences, changes in contemporary societies as well as urban systems with water research. Another key area of research is the lifelong processes of education and socialisation.

### **Quality standards**

Thanks to high quality standards, innovative teaching and learning concepts, the UDE is an attractive place for research-based teaching. To its 43,000 students from more than 130 nations, it offers more than 230 courses of study, 124 of which are courses for educating teachers.

### **Educational justice**

The UDE is regarded as a nationwide model for how educational justice can be implemented at a university. Numerous measures and projects promote young talents with perspective. The UDE sees itself as a lively place of diversity and openness, where students, researchers and employees can develop their potential and willingness to perform. The aim is to achieve a broad-based, resource-saving development.

### **Partnerships & Cooperation**

The UDE is in a strategic partnership with the Ruhr-Universität Bochum and the Technical University Dortmund under the umbrella of the University Alliance Ruhr (UA Ruhr). They cooperate closely in research and teaching and are also present together in three continents with their own international field offices. In addition, UDE maintains partnerships with more than 100 universities around the world.

For more information: [http://www.uni-due.de/imperia/md/content/dokumente/ppt/ppt\\_praesentation\\_uue\\_dt.pdf](http://www.uni-due.de/imperia/md/content/dokumente/ppt/ppt_praesentation_uue_dt.pdf)

## II. The Faculty of Chemistry

The Faculty of Chemistry is located on the Essen campus, where it has modern laboratories and offices in a chemical research building completed in 2008. There are currently 25 professors working in eight different fields: Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Technical Chemistry, Analytical Chemistry, the Biofilm Centre, Didactics of Chemistry and Theoretical Chemistry. Half of these professorships have been filled in the last ten years. The faculty is currently one of the largest chemistry faculties in Germany, with about 1,600 students and nearly 200 doctoral students, who are roughly equally divided over the three courses of study in chemistry, water science and teaching. Every year, about 40-50 young scientists, not only from chemistry, but also from physics, biology and engineering, do their doctorates here. The faculty also cooperates closely with the surrounding universities of applied sciences in Krefeld and Gelsenkirchen.

The Faculty represents the entire breadth of chemical research, from pure basic research to more application-oriented research, such as in the two associated institutes of our faculty, the German Textile Research Center Northwest (DTNW) in Krefeld and the Rheinisch-Westfälische Institut für Wasserforschung (IWW) in Mülheim. Close research collaborations at all levels also exist with the neighbouring Max Planck Institutes in Mülheim (Coal Research and Chemical Energy Conversion) and Dortmund (Physiological Chemistry). In addition, scientists from these institutions work as honorary professors and private lecturers at our faculty.

The Faculty actively participates in three of the four profile focus areas of the UDE. Activities in the area **Biomedical Sciences** are bioorganic and supramolecular chemistry, biomaterials research, drug development and release as well as biophysical chemistry. Here, in particular working groups from the field of organic, inorganic as well as the physical chemistry, which are also active in the *Center for Medical Biotechnology* (ZMB). This research area is represented in the Master's programme *Medical-Biological Chemistry*. Scientists of our faculty cooperate in a wide range of joint projects with colleagues from biology and medicine. Particularly noteworthy is Collaborative Research Centre 1093 *Supramolecular Chemistry of Proteins*, which runs since 2014 and whose second funding period has been successfully approved in 2017. The interdisciplinary focus **Nanoresearch** receives contributions from colleagues from the fields of inorganic chemistry, organic chemistry, physical chemistry, technical chemistry and theoretical chemistry. These scientists work on numerous topics in the areas of surface chemistry and functionalization, Nano-materials research, soft materials, self-assembly and self-organization, supramolecular chemistry and crystallography. Working groups of the Faculty of Chemistry are active members of the Center for Nanointegration Duisburg-Essen (CENIDE) and are also involved in the Board of Directors and in the development of the NanoEnergyTechnik-Zentrum (NETZ) in Duisburg. In the fields of heterogeneous catalysis and the energy research, the faculty for is looking closely cooperates with the Max Planck Institutes for Chemical Energy Conversion and for Coal Research in Mülheim and with partners at the Ruhr-Universität Bochum. UDE's faculty of chemistry manages the Collaborative Research Centre / Transregio 247 *Heterogeneous Oxidation catalysis in the liquid phase*, which has been running since 2018, and which bundles the aforementioned regional competences. In close collaboration, the participating scientists study new catalysts for, among others, electrolysis of water that can help to effectively store regenerative electrical energy in the form of synthetic chemical fuels. Due to the special importance of water as a liquid reaction medium, this area offers fruitful connections to

the research focus **Water research**, which has recently been established as the university's fifth profile focus. The faculty's major participation currently comes from the working groups in analytical and technical chemistry as well as from the Biofilm Centre. Chemists are active as board members in the Centre for Water and Environmental Research (ZWU) and as directors of the Institute for Water Research IWW in Mülheim an der Ruhr. The scientific work is focused mainly on microbial processes in aquatic systems, water quality management, new water technologies and the tracking of hazardous substances in the environment. Since 2014, the state of North Rhine-Westphalia has granted the Research Training Group *Future Water*, and recommended funding for the construction of a new research building in Essen, which was achieved with a significant participation of the Faculty of Chemistry.

The faculty's research is heavily funded by third parties. Third-party fundraising has been steadily increasing in recent years and has now stabilised at a high level (currently about 7 million € faculty-wide).

Many of the research activities outlined above are highly interdisciplinary, which is why almost all working groups of the Faculty, as already pointed out, cooperate intensively with scientists from other faculties of our university (especially biology, medicine, physics, engineering and educational sciences) as well as with other research groups at home and abroad. The Faculty is represented by its members in various national and international bodies.

The faculty has a long tradition in the training of chemists, environmental and water experts (via the curriculum "Water Science") and teachers. All courses of study at the faculty were successfully re-accredited in 2011/2012. The experience with the BSc/MSc courses introduced in the year 2005 were used to further optimize the teaching content and curriculum in close coordination with the students. The accredited Bachelor/Master's degree programmes ensure a Europe-wide comparability of the diplomas (Bachelor of Science, B.Sc. and Master of Science, M.Sc.), also in the sense of the Europe-wide recognition as Eurobachelor. Of course, the academic achievements are calculated in ECTS credits. In 2017, after the introduction of system accreditation, the first external institutional evaluation took place, which certified the faculty a high quality in teaching and an internationally visible research strength.

The faculty attaches particular importance to high-quality teaching: feedback from students on lectures and seminars is regularly evaluated and taken into account for the further development of the teaching offerings. In the first semesters, the prospective scientists and teachers are particularly intensively supervised in tutoring and mentoring groups. The practical training in the basic studies takes place in newly established, modern laboratories, while in the specialization courses a closer connection to the research working groups is encouraged. Even within the scope of the bachelor's degree programme, students typically come into contact with research-relevant topics from the fifth semester onwards – in the Master's degree programme, early involvement in research is a clear focus of UDE's chemistry curriculum.

The Faculty of Chemistry of the University of Duisburg-Essen is firmly involved in international cooperations. The commitment concerns both study programmes and research. For example, the Faculty is active in the European Union's Erasmus/SOCRATES programme, which promotes temporary stays abroad for students. Current partner universities include:

*Katholieke Universiteit Leuven, Belgium*  
*University of Plovdiv, Bulgaria*  
*Université Bordeaux 1, France*  
*Université Louis Pasteur de Strasbourg, France*  
*University of Reading, United Kingdom*  
*Politechnika Gdansk, Poland*

In the field of recruiting young talent, the Faculty of Chemistry offers a number of events for high school students. Outstanding high school students can already attend the basic lectures during their school years and obtain proof of achievement for their later studies. The faculty continues to participate successfully in the Summer University for Women and offers a highly sought-after trial study of chemistry with well over 100 participants in recent years. The Student Experimental Internship (SEPP), set up by the Faculty of Chemistry and available to lower secondary school classes once a week, is already booked out for months in advance.

But also on an individual basis a variety of activities take place in cooperation with schools and the interested public, e.g. lectures by lecturers on site in the schools, support in experimental and project work, visits to school classes at the university or the organization of open days. In addition, the university lecturers supervise a large number of student trainees throughout the year not only within the framework of the mandatory official student internships, but also on a voluntary, individual basis of interested students. For example, an average of about 40 students a year are supervised in the faculty as part of individual internships.

### **III. ISAS**

ISAS is a non-university research institution located in Dortmund. The Institute is committed to developing fast, accurate and cost-effective analytical methods for health research in order to improve capabilities for the prevention, early diagnosis and treatment of diseases.

The main areas of our activity are methods for the elucidation of disease mechanisms, the identification of potential drug targets and biomarkers, and the development of novel imaging and detection methods for biomolecules.

In the bioanalytics research department, ISAS develops techniques to quantify metabolites, lipids and proteins with spatiotemporal resolution in cells and tissues and applies these technologies for the investigation of complex signal transduction and metabolic pathways in cells and tissues at different levels. The research aims to integrate large datasets from different OMICS- and imaging technologies for a better understanding of highly dynamics processes leading to disease or maintaining healthy conditions.

ISAS is a member of the Leibniz Association, which comprises a network of 96 scientifically and legally independent institutes.

As an umbrella organization, the Leibniz Association sets the framework for the strategic cooperation of its members and provides a broad variety of networking opportunities, especially for doctoral and post-doctoral researchers. There are currently more than 3,600 doctoral candidates and 1,800 post-doctoral researchers within the Leibniz Asso-

ciation who contribute to achieving the organization's aims in providing excellent application-oriented basic research. Leibniz institutes are focused on research, but also closely collaborate with universities in education and teaching.

#### **IV. Analytical Chemistry in Duisburg-Essen**

The W1-Professorship „Lipidomics” (with Tenure Track to W2) will be part of the analytical chemistry division, which is represented by two W3-professors: Prof. Torsten C. Schmidt (Organic trace analysis, Stable isotope analysis, Water technology) and Prof. Oliver J. Schmitz (Chromatography and mass spectrometry).

The Schmidt group primarily focuses on behavior and transformation of organic compounds in aquatic systems. To that end, they use a broad range of analytical tools with a special emphasis on high-resolution mass spectrometry and stable isotope analysis. Besides natural systems, fundamentals and applications of oxidative processes to abate organic contaminants are particularly studied. Applied research is often done in collaboration with IWW Water Centre in Muelheim and IUTA in Duisburg.

The Schmitz group develops new ion sources for mass spectrometry and couples multi-dimensional chromatographic separations with MS detection. These state-of-the-art analytical tools are applied to the analysis of complex samples in lipidomics, metabolomics and environmental systems. A particular area of interest is the origin of life on earth. The Schmitz group runs many academic and industrial cooperations, both in Germany and international.

#### **V. Requirements for the position ”W1-Professor for Lipidomics”**

##### **1. Research**

We are looking for an excellent young scientist with comprehensive knowledge in the field of analytical methods for detection, structure elucidation and, quantification of different lipid classes and lipid mediators in body fluids and/or tissues to establish and lead a junior research group for lipidomics at ISAS.

The goals of the junior research group are the development of innovative approaches for the investigation of lipids as well as their integration into multi-omics procedures and interpretation of large data sets.

The applicant should have outstanding academic achievements as well as relevant practical experience in the field of activity of the junior research group. Ideally, the work should include contributions to clinical translation. Publications in the respective field in peer-reviewed journals, especially in leading international journals, are expected

##### **2. Teaching**

Participation in teaching is expected in the field of analytical chemistry in all curricula of the Faculty of Chemistry in both the Bachelor's and the Master's degree courses.

##### **3. Other requirements**

Particular emphasis is placed on the willingness to cooperate within UDE and to participate in existing and future major research cooperations. Publications in peer-reviewed journals are expected, as well as ideally already initial experiences with third-party funded research projects and in interdisciplinary research collaborations.

#### **4. Nature and expenditure of time of the activities**

This professorship is attributed with the normal teaching deputation of the initial 4 (in the first 3 years) and then 5 semester-week hours (in the second phase). In addition, the jobholder is responsible for participation in tasks of academic self-administration.

Within the framework of the junior professorship, an interim evaluation takes place after 3 years and after 6 years the final evaluation. In the case of successful final evaluation, the employment will continue as a W2-professor (tenure track procedure). The criteria for the interim evaluation and for the application for the W2 post will be shared with the candidates at the beginning of the application procedure.

#### **V. ENDOWMENT**

The workgroup will be located at ISAS in Dortmund (Otto Hahn Str. 6b). The endowment of the workgroup will be negotiated based on a 5-year research plan. ISAS will provide access to analytical instruments and computing infrastructure.

The Faculty of Chemistry has several central analytical service units (including nuclear magnetic resonance spectroscopy (NMR), mass spectrometry (MS), electron microscopy, elemental analysis, X-ray diffraction and polymer characterization) which can be used in addition to the facilities at the campus in Duisburg (NETZ, ICAN).

#### **VI. LEGAL FRAMEWORK**

With the Act on Higher Education of the State of North Rhine-Westphalia (Higher Education Act - HG) of 31.10.2006, the university system was fundamentally redesigned from 1 January 2007.

Since then, universities have been state-sponsored, legal bodies governed by public law. State funding is based on its tasks, agreed objectives and services. They have a global budget and are not subject to any instructions to the Ministry of Culture and Science of the State of North Rhine-Westphalia.

Legal status of university teachers: Professors are, if the legal requirements are met, in principle employed for life in the civil service. Professors can also be employed in a private service relationship.

For more information (laws, ordinances, etc.), please visit:  
[https://www.uni-due.de/verwaltung/organisation/peo\\_professoren.php](https://www.uni-due.de/verwaltung/organisation/peo_professoren.php)

#### **VII. SALARY**

The *Besoldungsordnung W* regulates the salary of university teachers and includes grades W1, W2 and W3.

The basic salaries are age-independent and can be increased for W2 and W3 by allowances (benefits). This is generally not possible for W1 positions. Such performance-related salary components in W2 and W3 positions can be awarded

- on the occasion of hearings of an appeal (**appeal benefits**),
- for special achievements in research, teaching, art, further education and the promotion of young talent (**special benefits**) and
- for the performance of functions or special tasks within the framework of university self-administration or university management (**functional benefits**)

In certain circumstances, so-called **research and teaching allowances** may be paid from the resources of private third parties.

Temporary benefits are linked to target agreements in the context of appeal and stay negotiations.

In the context of appeal hearings, the appeal benefits are individually negotiated with the rector of the University of Duisburg-Essen.

The current grades (North Rhine-Westphalia) for grades W1, W2 and W3 can be found under <http://www.lbv.nrw.de/beztab/beso.php>.

Information and legal bases on W-salary (NRW) can be found on the Internet at:

[https://www.uni-due.de/verwaltung/organisation/peo\\_links.php](https://www.uni-due.de/verwaltung/organisation/peo_links.php)  
<http://www.hochschulverband.de/cms1/w-besoldung.html>