With new PhD mobility programme, HRSMC helps chemistry PhD students to go abroad

Support for students at affiliated Universities of Amsterdam, Leiden, VU Amsterdam and Radboud University

The Holland Research School for Molecular Chemistry (HRSMC) recently started to offer financial support to PhD students that have a ground-breaking idea for performing research at a foreign institution. The new 'PhD Mobility Programme' is for PhD students of one of the HRSMC-affiliated universities, and for research that cannot be carried out at these universities. In the first round of the programme, six applications were granted. The second application round closes 1 October 2020.

The HRMSC PhD Mobility Programme supports visits to outstanding, foreign research groups lasting anywhere between one week and six months. It consists of a fixed grant for subsistence costs and reimbursement of travel costs. "With the PhD Mobility Programme, we want to stimulate our PhD students to acquire new knowledge and build new networks" says HRSMC Scientific Director Prof. Wybren Jan Buma. "For many years now we have a very successful Fellowship Programme in place that allows foreign PhD graduates and senior researchers to visit one of our affiliated universities for collaborative research projects. With the PhD Mobility Programme we now enable our PhD students to do the same and go abroad. This is important both for their research and their careers."

First recipients

Applications for the programme are assessed and ranked by the HRSMC Research Committee, advising the HRSMC Board and Scientific Director on awarding the grants. In the first application round in June of this year, all proposals were honoured. The first six HRSMC PhD Mobility grants were awarded to

Tessel Bouwens



PhD student with Prof. Joost N.H. Reek (University of Amsterdam), will visit Dr Elizabeth A. Gibson at the School of Chemistry at Newcastle University, UK (2 months). "Such a fruitful collaboration boosts my research while simultaneously I get to learn about new techniques from the experts in my field."

Tessel Bouwens studies dye-sensitized solar cells (DSSCs), in particular the recombination issue that is common to DSSCs due to fast electron–hole recombination at the dye–semiconductor interface. She proposes a supramolecular strategy to arrive at pseudorotaxane-based DSSCs featuring a photoswitchable redox mediator. Understanding the electron transfer kinetics of this novel system is of critical importance. At the lab of Dr Elizabeth A. Gibson she will apply time-resolved infrared spectroscopy (TR–IR) at nanosecond (ns) and picosecond timescales (ps) with a technique pioneered by Gibson.

Dario Calvani



PhD student with Dr Francesco Buda (Leiden University), will visit Prof. Adri C.T. van Duin at the Department of Mechanical Engineering of Pennsylvania State University, USA (3 months). "I firmly believe that HRSMC is providing me an unique and great opportunity to personal grow and to develop current and future scientific research."

Dario Calvani is studying water oxidation catalysts for use in proton exchange membranes in the context of dye-sensitized photoelectrochemical cells for artificial photosynthesis. During his visit he will develop a novel computational representation of the catalysts cycle at reactive molecular dynamics level, using the ReaxFF reactive force-field approach developed by Prof. Adri van Duin.

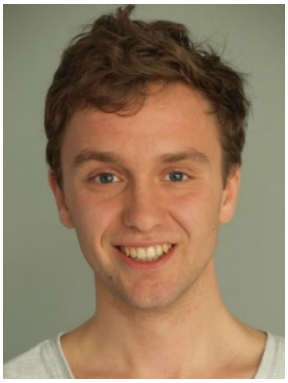
Zohre Eskandari Alughare



PhD student with Prof. Michel Orrit (Leiden University), will visit Prof. Don C. Lamb at the Ludwig-Maximilians-Universität München, Germany (2 months). "Collaboration and sharing experiences, knowledge, and equipment increases outcomes and saves time, which all are essential to reach the goals during a PhD journey."

Zohre Eskandari Alughare studies the binding of individual small molecules, in particular CO, to the heme of myoglobin, an oxygen storage protein in muscle tissue. The binding kinetics can be measured precisely through the quenching of a fluorescent dye attached to the myoglobin using Förster Resonance Energy Transfer (FRET). The focus of her visit will be on optimal dye labeling using two mutation variants of myoglobin, and lifetime measurement to obtain FRET efficiencies and CO rebinding kinetic parameters.

Alexander (Sander) Lemmens



PhD student with Prof. Wybren Jan Buma (University of Amsterdam) and Dr Anouk M. Rijs (Radboud University), will visit Prof. Mattanjah de Vries at the University of California at Santa Barbara, USA (2,5 months). "It will be good to work in a different group abroad, conduct very relevant research and learn a lot. Not only about science, but maybe also about my future."

Sander Lemmens studies Polycyclic Aromatic Hydrocarbons (PAHs) that can be found in the gaseous and dusty regions of the interstellar medium. In the laboratory, he applies laser spectroscopic techniques to acquire high-resolution absorption spectra of these PAHs under the right conditions, i.e. isolated and cold. At the laboratory of Prof. Mattanjah de Vries he will use complementary techniques such as stimulated emission pumping, to obtain insights from a different angle into the photophysical properties of PAHs.

Olga Lushchikova



PhD student with Dr. Joost M. Bakker (Radboud University), will visit Prof. Paul Scheier at the University of Innsbruck (2 weeks). "With the HRSMC mobility grant I can visit the laboratory where I can broaden my knowledge and set up further collaborations towards the next step in my career."

The PhD research of Olga Lushchikova focuses on the spectroscopic characterization of gas phase complexes formed by copper clusters with various small molecules as model systems for catalytic interactions. At the Scheier group in Innsbruck, she will explore a novel technique to study the products resulting from reacting C_{60}^+ ions with astrochemically relevant species such as H_2, D_2, H_2O, CH_4 and CO_2. The technique revolves around helium tagging to arrive at extremely sensitive spectral characterization.

Pascal Vermeeren



PhD student with Prof. Dr. F. Matthias Bickelhaupt and Dr. Trevor A. Hamlin (Vrije Universiteit), will visit Prof. Henry F. Schaefer III and Prof. Steven E. Wheeler of the Center of Computational Quantum Chemistry at the University of Georgia (USA) (6 weeks). "I want to learn new computational techniques and broaden my network, at one of the leading computational chemistry institutes of the world."

Pascal Vermeeren studies the use of metallylene catalysts for the activation of small molecules. The scope of his visit is to rationally design novel metallylene catalysts for the hydrogenation of a wide range of unsaturated bonds using state-of-the-art computational techniques. For the first time, the combined Activation Strain Model (ASM) of reactivity and the 'An Automated Reaction Optimizer for New catalysts' (AARON) approach will be employed.

John van Geuns foundation

The HRSMC PhD Mobility Programme is sponsored by the John van Geuns foundation. This promotes chemistry education at the University of Amsterdam (UvA), as well as UvA chemistry research into the interaction between light and matter. As a result, John van Geuns PhD Mobility Scholarships are available for PhD students studying the interaction between light and matter under supervision of a UvA staff member (or a supervisor connected to the UvA). Both Tessel Bouwens and Sander Lemmens received such a John van Geuns PhD Mobility Scholarship.

About the HRSMC PhD mobility programme

Who can apply?

PhD students who are a member of the HRSMC and who are not yet in their final half year of their PhD contract.

What is funded?

Travel costs will be reimbursed based on the cost of second class rail or tourist class air travel, to a maximum of €500 for destinations within Europe and €1500 for destinations outside Europe.

Subsistence costs will be supported through a fixed grant of €1000 per month. When the actual visit is shorter than the proposed visit, the subsistence costs are adjusted proportionately.

Please take note

Applications can be submitted twice a year, before April 1 and October 1. The proposed visit should start within one year after the date of the approval notice. The student has to return before the last half year of his/her PhD contract. In case of equal evaluation, applications in which staff members of two or more different research groups are involved will be given a higher priority.

About HRMSC

The Holland Research School of Molecular Chemistry was founded in 1994 and has been re-accredited three times by the Royal Netherlands Academy of Arts and Sciences (KNAW).
The Research School combines research groups working on synthesis, spectroscopic characterization and theoretical and computational description of molecular systems from the University of Amsterdam, VU Amsterdam, Leiden University and Radboud University Nijmegen. Apart from creating the appropriate conditions for further collaboration between the participating groups, the school also provides an internationally highly acclaimed teaching program for talented PhD and MSc students in molecular chemistry and physics.