

Curriculum Vitae

Dr. Dmitry Momotenko

Head of a Junior Research Group
Department of Chemistry
School of Mathematics and Sciences
Carl von Ossietzky University of Oldenburg
D-26111, Oldenburg
Germany



Personal Information

Date of Birth: 6th May 1987
Place of Birth: Sumy, USSR
tel.: +41 76 250 68 35
email: dmitry.momotenko@uol.de
ORCID ID: 0000-0003-0302-4916
Google Scholar: <https://scholar.google.com/citations?user=V41z0Z0AAAAJ&hl=en>

Education

09/2009 – 08/2013

Doctor of Science (PhD)

Laboratory of Physical and Analytical Electrochemistry, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Supervisor: Prof. Hubert H. Girault

Thesis: "Scanning electrochemical microscopy and finite element modeling of structural and transport properties of electrochemical systems".

09/2004 – 06/2009

Chemist (Diploma, specialization: Analytical Chemistry)

Chemistry Department, M.V. Lomonosov Moscow State University, Russia

Thesis: Liquid-liquid extraction of iron (III), copper (II) and nickel (II) ions into ionic liquid trioctylmethylammonium salicylate.

Employment

02/2021 – Present

Head of a Junior Research Group/ERC Starting Grant 2020 winner

Department of Chemistry, Carl von Ossietzky University of Oldenburg, Germany

- Nanoscale 3D printing
- Li ion batteries
- Scanning electrochemical probe techniques for materials characterization

11/2017 – 01/2021

Group Leader, SNF Ambizione Grantee

Laboratory of Biosensors and Bioelectronics, ETH Zürich, Switzerland

Host: Prof. Janos Vörös

- Principal Investigator and Group Leader.
- Nanoscale 3D printing of metals.
- Development of nanoelectrochemical methods for single entity measurements: electrocatalysis, nanothermometry, nanomanipulation for energy and bio-applications.
- Single-molecule detection with mobile nanopore technology.

07/2016 – 06/2017

University of Warwick Honorary Fellow

06/2014 – 05/2016

Marie Curie Intra-European Fellow

10/2013 – 05/2014

Postdoctoral Research Assistant

Warwick Electrochemistry and Interfaces Group, University of Warwick, UK

Supervisor: Prof. Patrick R. Unwin

- Development of advanced nanoscale electrochemical imaging methods for mapping structural and functional chemical properties at material interfaces.
- Electrochemical 3D printing.
- Single nanoparticle electrochemistry.
- Mathematical modeling.
- Teaching and supervision of students at undergraduate and postgraduate level, project leading and coordination of experimental work of a research sub-group.
- Independent research (2 publications as a leading corresponding author).

09/2009 – 08/2013

Doctoral Assistant

Laboratory of Physical and Analytical Electrochemistry, EPFL, Switzerland

Supervisor: Prof. Hubert H. Girault

- Development of “soft probe” techniques for scanning electrochemical microscopy (now the technology is commercialized by Princeton Applied Research Ametek, <https://www.ameteksi.com/products/scanningelectrochemicalsystems/vs-stylus>).
- Theoretical work on ionic diodes.
- Development of novel microelectrochemical methods for advanced chemical analysis.
- Mathematical modelling of mass-transport and electrochemical processes at micro- and nanoscale.

Institutional Responsibilities

09/2018 – 06/2019

Organizer of seminar series “Research Topics in Biomedical Engineering”
Institute for Biomedical Engineering, ETH Zürich.

Research Funding Record (Total acquired funds EUR 3.6 million)

02/2021 – 01/2026

ERC Starting Grant 2020 “Nanoscale 3D Printing of a Lithium Ion Battery: Rethinking the Fabrication Concept for a Revolution in Energy Storage”. **Role:** PI. **Budget:** €2.25M

12/2019 – 11/2020

Swiss National Science Foundation SNF Spark Grant “Nanoscale 3D Printed Lithium Ion Battery: Towards a Revolution in Energy Storage”. **Role:** PI. **Budget:** CHF 100k (EUR 90k)

01/2020 – 12/2022

ETH Zurich Research Grant “Scanning Nanopore Microscopy for Single Molecule Analysis”. **Role:** co-PI. **Budget:** CHF 230k (EUR 210k)

11/2017 – 10/2021

Swiss National Science Foundation SNF Ambizione Grant “Single Entities at High Magnification: Mapping, Measuring and Manipulating Nanoparticles”. **Role:** PI. **Budget:** CHF 680k (EUR 630k)

08/2017

Start-up Funding for a Junior Research Group (University of Oldenburg, Germany). **Role:** PI. **Budget:** €225k for 3 years. Granted but refused by the applicant upon award of the SNF Ambizione Grant.

06/2014 – 05/2016

Marie Curie Individual Intra-European Fellowship for the project “Functional Ion Conductance Imaging and Sensing”. **Role:** Fellow. **Budget:** €220k. Awarded to take a postdoctoral position at the University of Warwick, UK.

Supervision of Junior Researchers

01/2019 – Present

PhD: **Julian Hengsteler**. Thesis: “Development of new approaches in nanoscale 3D printing.” Educational Institution: ETH Zürich.

MSc: **Andrea Fresco**. Thesis: “Microscale printing of living cells”. Educational Institution: ETH Zürich and Polytechnico di Milano.

MSc: **Albert Ripoll**. Thesis: “Microscale 3D printing of multi-metal in meniscus-confined electrodeposition”. Educational Institution: ETH Zürich.

MSc: **Barnik Mandal**. Thesis: “Nanoscale 3D Printing of Copper”. Educational Institution: ETH Zürich and Polytechnico di Milano.

01/2019 – 08/2019

MSc: **Martin Holub**. Thesis: “Scanning Nanopipette Thermometry”. Educational Institution: ETH Zürich.

02/2019 – 07/2019

BSc: **Dominic Eggemann**. Thesis: “Aptamer-Functionalized Nanopipettes for Neurotransmitter Sensing”. Educational Institution: ETH Zürich.

10/2013 – 05/2016

PhD: **Minkyung Kang**. Thesis: “Single Nanoparticle Electrochemistry”. Educational

Institution: University of Warwick.

PhD: **David Perry**. Thesis: "Developing and Extending the Capabilities of the Scanning Ion Conductance Microscope". Educational Institution: University of Warwick.

PhD: **Ashley Page**. Thesis: "Multifunctional Scanning Ion Conductance Microscopy". Educational Institution: University of Warwick.

PhD: **Sophie L. Kinnear**. Thesis: "Development and Application of Electrochemical Scanning Probe Techniques for Studying Interfacial Processes". Educational Institution: University of Warwick.

06/2011 – 01/2012

MSc: **Ruslan Cusnir**. Thesis: "New Soft Linear 32-Mircoelectrode Arrays for High Throughput SECM Experiments: Preparation, Characterization and Applications". Educational Institution: EPFL.

Teaching Activities

10/2013 – 05/2016

Teaching assistant for seminars in Surface Science and Physical Chemistry courses for 2nd and 3rd year students, University of Warwick, UK.

09/2009 – 08/2013

Teaching assistant for undergraduate practical courses at EPFL and University of Lausanne (>650 academic hours):

Analytical Separation Methods (UNIL-303): Atomic absorption spectroscopy

Experimental Physical Chemistry (CH-349): Calorimetry.

Two independently developed contributions to course programs: (i) Scanning Electrochemical Microscopy and (ii) Finite Element Modeling in Chemistry for MSc program "Molecular&Biological Chemistry", EPFL.

Individual Scientific Reviewing Activities

09/2013 – Present

Referee for

Chemical Science, Applied Physics Letters, Journal of Physical Chemistry C, Journal of Electroanalytical Chemistry, Journal of Colloid and Interface Science, Additive Manufacturing, Journal of Materials Processing Technology.

Reviewing activity can be tracked at publons.com.

Active Memberships in Scientific Societies

09/2018 – Present

Member of the Electrochemical Society.

11/2017 – 01/2021

Member of the Swiss Society for Biomedical Engineering.

05/2014 – Present

Member of the International Society of Electrochemistry.

Prizes and Awards

01/2019

Selected as one of ETH Zürich representatives at Global Young Scientist Summit, January 2019, Singapore. Conference participation by invitation only. Speakers list included 10 Nobel Prize laureates, 3 Fields Medal winners, Millennium Technology Prize and Turing Award recipients. A short report about the event is available at the link <https://blogs.ethz.ch/ETHambassadors/2019/02/14/nobel-laureates-mentor-the-next-generation-of-young-scientists/>.

10/2011

Award for Excellence in Teaching (EPFL, Switzerland).