

Heiko LANGE, DR RER. NAT., DIPL.-CHEM.

ASSOCIATE PROFESSOR

University of Milan-Bicocca
Department of Earth and Environmental Sciences
Piazza della Scienza 1, 20126 Milan, Italy

email: heiko.lange@unimib.it

ResearchGate: https://www.researchgate.net/profile/Heiko_Lange
LinkedIn: <https://it.linkedin.com/in/heiko-lange-5a2a8358>
Xing: https://www.xing.com/profile/Heiko_Lange43
homepage laboratory: <https://www.spotslab.net>

ORCID: 0000-0003-3845-7017
Scopus (March 2021) h-index 25; >2050 citations

Habilitated (Associate Professor level, Italy) in: *Principles of Chemistry and Inorganic Systems (04/2017)*
Chemical Basis of Technology Applications (03/2017)
Organic Chemistry (04/2017)
Industrial and Applied Chemistry (03/2017)

Experiences

- 04/2019 – present Associate Professor for General and Inorganic Chemistry, UNIVERSITY OF MILAN-BICOCCA, Department of Earth and Environmental Sciences, Milan, Italy.**
- Elaborating enzymatic and biomimetic routes to polyphenol modification.
 - Investigating uses of (modified) polyphenols in nanostructures for medicinal use.
 - Working towards high value / high-performance polymers on the basis of refined and homogenised oligomeric and polymeric lignin.
 - Developing strategies for characterisation and valorisation of polyphenols from algae.
 - Investigating uses of (modified) polyphenols in medicinal / phytosanitary chemistry.
- 04/2019 – 02/2021 Researcher (Assistant Professor) for Organic Chemistry, UNIVERSITY OF NAPLES 'FEDERICO II', Department of Pharmacy, Naples, Italy.**
- Designing and developing scalable syntheses of privileged scaffolds in meso-flow reactors using 'green chemistry' principles.
 - Working towards high value / high-performance polymers on the basis of refined and homogenised oligomeric and polymeric lignin.
 - Developing strategies for characterisation and valorisation of polyphenols from algae.
 - Investigating uses of (modified) polyphenols in nanostructures for medicinal use.
 - Tutor of one PhD student and three Master students.
- 11/2017 – 03/2019 Researcher (Assistant Professor) for General Chemistry, UNIVERSITY OF ROME 'TOR VERGATA', Department of Chemical Sciences and Technologies, Rome, Italy.**
- Developing strategies for chemical homogenising polymeric natural polyphenols.
 - Working towards high value / high-performance polymers on the basis of refined lignin.
 - Investigating uses of (modified) polyphenols in nanostructures.
 - Investigating uses of (modified) polyphenols in medicinal / phytosanitary chemistry.
 - Lecturer for "Drug Analysis II" within the "Degree Course of Pharmacy".
- 09/2012 – 10/2017 Senior Research Associate, group of Professor Claudia CRESTINI, UNIVERSITY OF ROME 'TOR VERGATA', Department of Chemical Sciences and Technologies, Rome, Italy.**
- Developing protocols and methods for the selective upgrading of lignin as a polymer.
 - Designing and evaluating analyses strategies for polyphenolic biopolymers.
 - Investigating potential uses of (modified) polyphenols in pharmacy / medicinal chemistry.
 - Supervising/training undergraduate students, PhD students, and postdoctoral researchers.
 - Initiated and built-up departmental MALDI mass analysis centre.

- 09/2010 – 08/2012** Postdoctoral Research Fellow, group of Professor George M. WHITESIDES, HARVARD UNIVERSITY, Department of Chemistry and Chemical Biology, Cambridge, MA, United States
- Designing of, and working on sets of biophysical experiments towards understanding and rationalising the hydrophobic effect(s) involved in biomolecular recognition.
 - Developing microfluidic paper-based analytical devices (μ PAD) for point-of-care detection of tuberculosis infections (*personal project financed by the DFG*).
 - Research aiming at chemically validating the target of a new anti-mycobacterial agent.
 - Designing and evaluating new chemical amplification and read-out techniques.
- 06/2008 – 08/2010** Postdoctoral Research Associate, group of Professor Steven. V. LEY, UNIVERSITY OF CAMBRIDGE, Department of Chemistry, Cambridge, Great Britain
- Designed and worked on the total synthesis of spirangien A and B using modern enabling technologies for synthesis, especially flow chemistry combined with new in-line analytical detection tools (*personal project financed by the AvH foundation*).
 - Expanded the applicability of flow chemistry to new fields of organic chemistry.
 - Developed new polymer-supported reagents for applications in flow chemistry.
 - Supervised/trained five PhD and two Masters students.
- 03/2008 – 05/2008** Postdoctoral Research Associate, group of Professor Dieter HOPPE, WESTFÄLISCHE WILHELMS-UNIVERSITÄT MÜNSTER, Organisch-Chemisches Institut, Münster, Germany
- Studied conditions for the crystallisation of complexes of lithiated benzyl carbamates.
 - Supervised laboratory technician and trained Masters students.
- 09/2006 – 11/2006** Visiting Research Assistant, group of Professor Takeshi TORU, NAGOYA INSTITUTE OF TECHNOLOGY, Department of Chemistry, Nagoya, Japan
- Worked on a joint research project: *Asymmetric lithiation of alkyl aryl sulfides*.
- 02/2004 – 02/2008** Graduate student, group of Professor Dieter HOPPE, WESTFÄLISCHE WILHELMS-UNIVERSITÄT MÜNSTER, Organisch-Chemisches Institut, Münster, Germany
- Ph.D. thesis in organic chemistry: *Configurationaly Labile Chiral α -Metallated Benzyl Carbamates - Synthetic and Theoretical Aspects*.
 - Accomplished asymmetric syntheses routes yielding highly enantioenriched benzyl carbamates.
 - Co-developed a general method for the quantum chemical description of the equilibriums of epimers of α -lithiated benzyl-type carbamates.

Education

- 11/2015 – 11/2016** LUISS - LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI GUIDO CARLI, Roma, Italy
SAA - SCHOOL OF MANAGEMENT, Torino, Italy
- 11/2016
- **Executive master** in OPEN INNOVATION AND INTELLECTUAL PROPERTY.
- 10/1999 – 02/2008** WESTFÄLISCHE WILHELMS-UNIVERSITÄT MÜNSTER, Münster, Germany
- 02/2008
- **Doctorate** in organic chemistry (grade: *summa cum laude*).
- 02/2004
- **Diploma** in chemistry (grade: "mit Auszeichnung" (*with distinction*)).
- 08/1989 – 05/1998** BERGSTADT GYMNASIUM LÜDENSCHIED, Lüdenscheid, Germany
- 05/1998
- **A-level** (grade: 1,3).

Civilian Service

- 09/1998 – 09/1999** JUGENDAMT DER STADT LÜDENSCHIED, Lüdenscheid, Germany
- Worked in a day-care facility for children as cook and caretaker.

Research products (summary)

- 2008 - present**
- 52 publications in peer-reviewed journals
 - 4 patents (as inventor)
 - 5 contributions in scientific books
 - > 30 poster and oral presentations at national and international conferences

Teaching experiences

- 03/2021 – present** UNIVERSITY OF MILAN-BICOCCA, Department of Earth and Environmental Sciences, Milan, Italia.
- Lecturer for 'General and Inorganic Chemistry' within the Bachelor Degree Course in Geologic Sciences and Technologies.
- 04/2019 – 02/2021** UNIVERSITY OF NAPLES 'FEDERICO II', Department of Pharmacy, Naples, Italy
- Lecturer for "Organic Chemistry of Biomolecules" within the Bachelor Degree Course 'in Nutraceutical Sciences'.
 - Lecturer for "Organic Chemistry – Modul B" within the Bachelor Degree Course 'in Quality Control'.
- 04/2018 – 03/2019** UNIVERSITY OF ROME 'TOR VERGATA', Department of Chemical Sciences and Technologies, Rome, Italy
- Lecturer for "Sustainable Chemistry" within the Master's Degree Course 'Chemistry'.
 - Lecturer for "Drug Analyses II" within the 'Degree Course of Pharmacy'.
- 10/2012 – 09/2017** UNIVERSITY OF ROME 'TOR VERGATA', Department of Biology, Rome, Italy
- Lecturer on Contract for "Drug Analyses II" within the 'Degree Course of Pharmacy'.
- 10/2008 – 05/2010** UNIVERSITY OF CAMBRIDGE, Department of Chemistry, Cambridge, Great Britain
- Teaching third and fourth year undergraduate students in organic chemistry.
- 04/2002 – 03/2006** WESTFÄLISCHE WILHELMS-UNIVERSITÄT MÜNSTER, Organisch-Chemisches Institut, Münster, Germany
- Tutor and Teaching Assistant in basic and advanced practical courses in chemistry.

Scholarships / Awards / Project Fundings

- 08/2019 - present** Co-Principal Investigator and Project Coordinator of 'BlueAPP' project, funded as part of the Industrial, Scientific and Technological Cooperation between Italy and Israel of the **MINISTERO DEGLI AFFARI ESTERI E DELLA COOPERAZIONE INTERNAZIONALE (MAECI)**, Italy.
- 06/2014** Fellowship for a Short term Scientific Mission (STSM) within the European Cooperation in Science and Technology framework, specifically within **COST ACTION FP1105**.
- 03/2011 – 08/2012** Fellowship for post-doctoral researchers from the **DEUTSCHE FORSCHUNGSGEMEINSCHAFT (DFG)**, Germany.
- 06/2008 – 05/2010** Feodor Lynen Fellowship for Postdoctoral Researchers from the **ALEXANDER VON HUMBOLDT-FOUNDATION (AvH)**, Germany.
- 12/2008** Faculty Award for excellent PhD thesis: UNIVERSITY OF MÜNSTER, Germany.
- 12/2006 - 09/2007** Fellowship from the **INTERNATIONAL NRW GRADUATE SCHOOL OF CHEMISTRY MÜNSTER**, Germany.
- 09/2006 - 11/2006** Short-term fellowship from the **JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE (JSPS)**, Japan.
- 08/2004 - 07/2006** Doctoral fellowship from the **FONDS DER CHEMISCHEN INDUSTRIE (FCI)**, Germany.
- 05/2002 - 03/2004** Undergraduate Student Fellowship from the **STUDIENSTIFTUNG DES DEUTSCHEN VOLKES**, Germany.

Editorial activity

- 08/2019 - present** Member of the 'Editorial Board' for 'Natural Products Chemistry', MOLECULES (MDPI).
2020 Special Issue in MOLECULES: *Sustainable Approaches to Natural Product-Inspired Drug Discovery and Development* (current)
- 2019/2020 Special Issue in POLYMERS: *Algae-Based Polymers: Current Trends and Emerging Opportunities* (closed)
- 2019 Special Issue in MOLECULES: *Lignin—Chemistry and Materials: Past, Present and Future* (closed)

Organisation of conferences

- 03/2020** Co-organiser of the symposium 'Innovative Lignin Upgrading: Smart Materials and Specialty Chemicals', CELL division, 259th **ACS NATIONAL MEETING & EXPOSITION**, Philadelphia, USA.
- 03/2018** Co-organiser of the symposium 'Lignin- From Fundamentals to New Materials Applications', CELL division, 255th **ACS NATIONAL MEETING & EXPOSITION**, New Orleans, USA.

Comissions of trust / Assignments

- 09/2019 – 02/2021** Member of the 'Didactic Commission' of the Bachelor's Degree Course 'Nutraceutical Sciences' at the UNIVERSITY OF NAPLES 'FEDERICO II', Department of Pharmacy, Naples, Italy.
- 10/2018 – present** Reviewer for the GERMAN RESEARCH FOUNDATION (DEUTSCHE FORSCHUNGSGEMEINSCHAFT (DFG)) for research funding applications.
- 04/2018 – present** Registered expert for REPRISE, MINISTERO DELL'ISTRUZIONE, DELL'UNIVERSITÀ E DELLA RICERCA, Italy.
- 09/2015 – present** Reviewer for ACS CATALYSIS, ACS SUSTAINABLE CHEMISTRY & ENGINEERING, ANALYTICAL METHODS, BIOTECHNOLOGY FOR BIOFUELS, BIOMOLECULES, CATALYSTS, COATINGS, COLLOIDS AND SURFACES A, GREEN CHEMISTRY, INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, INDUSTRIAL CROPS AND PRODUCTS, INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, INTERNATIONAL JOURNAL OF POLYMER SCIENCE, JOURNAL OF CHEMISTRY, MATERIALS, MOLECULES, POLYMERS, RSC ADVANCES.
- 01/2015 – present** Member of the Selection Committee of the **GERMAN ACADEMIC EXCHANGE PROGRAM (DEUTSCHER AKADEMISCHER AUSTAUSCHDIENST (DAAD))** for applications for postdoctoral research stipends.

Advisory activity

- 07/2020 – present** Advisory activity, also by practical analytical support, for Fater s.p.a.

Memberships

- 09/2018 – present** Affiliation with **NANOSCIENCE & NANOTECHNOLOGY & INNOVATIVE INSTRUMENTATION CENTER (NAST)**, UNIVERSITY OF ROME 'TOR VERGATA', Rome, Italy.
- 01/2017 – present** Affiliation with **CONSORZIO INTERUNIVERSITARIO PER LO SVILUPPO DEI SISTEMI A GRANDE INTERFASE (CSGI)**, Florence, Italy.
- 03/2013 – present** Associate member of the **SOCIETÀ CHIMICA ITALIANA (SCI)**.
- 01/2003 – present** Associate member of the **GESELLSCHAFT DEUTSCHER CHEMIKER E.V. (GDCh)**.