



Early Stage Researcher (PhD candidate) Marie Skłodowska Curie ITN – CO2PERATE

The Department of Chemistry of the University of Zurich (DoC-UZH) offers within the European Commission Marie Skłodowska-Curie Innovative Training Network (MSCA-ITN-ETN) CO2PERATE (Cooperation towards a sustainable chemical industry based on CO₂) one position (100%) for Early Stage Researcher (PhD candidate). The position should be filled between until 30 June 2020 (at the latest). Funding of the positions is available for 3 years and comprises an attractive training curriculum with international partners.

Be part of the European International Training Network CO2PERATE

CO2PERATE provides high level training to educate the next generation of researchers who will provide essential progress towards sustainable chemical processes based on CO₂. The interdisciplinary and intersectorial research programme unites 3 industrial and 6 academic nodes with world-leading expertise in catalysis, organic synthesis, computational modelling, isotopic labelling, process plant development, and manufacturing of pharmaceuticals and chemical additives.

Objectives of the research network

The MSCA-ITN-ETN CO2PERATE project aims to develop industrially relevant processes for CO₂ conversion, with main focus on using CO₂ as a synthon in carbon-carbon bond formation. Our society depends on thousands of indispensable compounds such as dyes, detergents, pharmaceuticals, and plastics. Such products are synthesized from starting materials that originate from fossil resources, mainly oil. As oil is depleting, alternative technologies have to be developed. CO₂ is a benign and sustainable carbon source, which in analogy to natural photosynthetic processes can be used as a starting material in organic synthesis to form chemical building blocks. However, despite its potential, the scope of chemicals available from CO₂ remains narrow. In particular, the number of catalytic syntheses leading to carbon-carbon bond formation from CO₂ is extremely limited, although the carbon-carbon linkage constitutes the core of all organic molecules.

Project

Cyclic carbamates, particularly five-membered oxazolidinones, have broad application as agrochemicals and antibacterial drugs as well as chiral auxiliaries in organic synthesis. To date, existing methods for the asymmetric synthesis of oxazolidinones from achiral substrates are missing. In this project we will investigate the development of enantioselective processes for formation of chiral carbamates from achiral substrates and CO₂. The resulting compounds will be evaluated in collaboration with Dr. Johansson at AstraZeneca (Stockholm).



The position involves the rational design and implementation of novel protocols in the area of asymmetric catalysis supported by computationally as well as experimentally driven mechanistic studies (reaction kinetics, deuterium labelling studies, isolation of organometallic intermediates, etc...).

Requirements:

Are you an excellent, open-minded and team-spirited PhD candidate with a background in organic/organometallic chemistry? Do you have good knowledge and practical experience in organic chemistry and are familiar with techniques such as inert atmosphere, NMR, UV-Vis, IR, MS, etc...Are you interested or have previous experience in the area of computational or physical organic chemistry? Do you fluent in English, both in spoken and written form?.

If this is the case...we are waiting for your application! Keep in mind you will be required to meet the Marie Skłodowska-Curie Early-Stage Researcher eligibility criteria: (<http://ec.europa.eu/research/mariecurieactions/>). In particular, at the time of appointment you must have had less than four years full-time equivalent research experience and must not have already obtained a PhD. Additionally, you must not have resided in Switzerland for more than 12 months in the three years immediately before the appointment.

We offer

You will be part of an excellent international research team and benefit from the scientific and complementary training programme of the EU-funded Innovative Training Network (ITN) CO2PERATE. We offer highly competitive and attractive salaries according to regulations of Marie Skłodowska-Curie Actions, plus mobility and family allowances as applicable.

Applications

Your application should contain:

- letter of motivation
- curriculum vitae
- research summary of past accomplishments
- transcripts of records from University/University College and copy of your degree
- one written recommendation letter (e.g. by your Master thesis supervisor) and the contact details of at least one more referee.

Submit your application electronically, **as a single pdf file**, to: Sinergia.brd@chem.uzh.ch until 31th May 2020. The positions will be filled as soon as a perfect candidate has been found.

Contact Person



**University of
Zurich^{UZH}**

Prof. Cristina Nevado
Department of Chemistry-University of Zürich
Winterthurerstrasse 190, CH-8057. Zürich (Switzerland)
(Incomplete applications will NOT be considered)