

## **Citation: A/Prof Nico Fischer – Department of Chemical Engineering**

A/Prof Fischer is a soft funded researcher working in the Catalysis Institute hosted by the Department of Chemical Engineering and more specifically in the DSI-NRF Centre of Excellence in Catalysis  $c^*$ change. His research focuses on the development of novel materials for heterogeneously catalysed synthesis gas conversion and  $CO_2$  activation processes. A specific focus of his work lies on the study of active materials under relevant reaction conditions monitoring phase and structural changes in real time, i.e. *in situ*.

After completion of his undergraduate degree in chemical engineering at the Karlsruhe Institute of Technology in Germany, A/Prof Fischer joined UCT as a PhD student late in 2007 working on model catalyst systems in the Fischer-Tropsch synthesis, the industrial process converting synthesis gas to fuels and chemicals. In June 2011 he started a position as research team leader in heterogeneous catalysis at BASF in Germany. His industrial research focused on the development of selective oxidation catalysts and their introduction to the international market. In January 2014, he re-joined UCT's Department of Chemical Engineering first as Senior Research Officer and since January 2018 as Associate Professor where he is very active in the supervision of MSc and PhD students as well as convenes the catalysis specific MSc coursework offerings.

His scientific outputs have been published in form of numerous articles in peer reviewed journals creating significant impact as evidenced by an h-index of 14. The work is regularly presented in form of oral and poster presentations at local and international conferences and has been showcased as keynote and invited presentation at international meetings. Besides the classic academic outputs, A/Prof Fischer is co-inventor of seven patent families having resulted in 15 granted patents in various countries. One of his inventions, a sample presentation device to study materials under realistic atmospheres with X-ray diffractometry, is currently being produced under licence by a UCT spin-off company. His work has also been recognized in form of awards such as two best oral presentation awards (2010), being named finalist of the 2011/12 NSTF-BHP Billiton Awards, the BASF Sunrise Award 2013, the Newton Advanced Fellowship by the Royal Society (2015-2017) and the Young Scientist Prize at the 16<sup>th</sup> International Congress on Catalysis (2016). Since 2018 he also holds a Y1 NRF rating.

Besides his scientific outputs, A/Prof Fischer also plays a leading role in the catalysis research community as an elected member of the Committee of the Catalysis Society of South Africa since 2015, acting as media officer (2015), chairperson (2016-2017) and secretary (since 2018). Since 2016 he also represents the South African catalysis society at the International Association of Catalysis Societies (IACA) and the European Federation of Catalysis Societies (EFCATS). He has been in the organizing committee of three international conferences, serving as chair in one instance, and helped in 2016/17 to bring the first ever Faraday Discussion Meeting to the African continent. In the DSI-NRF Centre of Excellence in Catalysis  $c^*$ change A/Prof Fischer heads up both the science engagement and knowledge brokerage key performance areas. In this role he has organized various training events for young researchers and had spearheaded the development of physical sciences teaching materials for high school learners in the  $c^*$ hemRoots project. These materials were distributed to over 120 high school teachers in the Western Cape in a large-scale training event and are, through a partnership with the Cape Town Science Centre, continuously being used to demonstrate fundamental concepts in chemistry to learners. In 2018, with a grant provided by the Royal Academy of Engineering, A/Prof developed the training initiative ANSDAC (African Neutron and Synchrotron Data Analysis Competency) with colleagues from UWC, SASOL and the University of Glasgow. The initiative provides a free 10-day training course to emerging African researchers in the analysis of synchrotron and neutron related datasets. The material is lectured by South African and UK experts. As participants only must cover their travel to and from Cape Town (accommodation and catering is covered by the project) 30 researchers from 16 African institutions were able to attend in the first two workshops.