

Abstract:

As a chemical scientist at C1 Green Chemicals AG, Berlin, and with a postdoctoral experience in hydrogen transfer reactions and carbon footprint minimization through chemical transformations at the University of Münster, Germany and the Max-Planck Institute for Chemical Energy Conversion (MPI-CEC), Mülheim Germany, my research has consistently revolved around the interface of energy and chemical sectors.

During my doctoral studies at the RWTH Aachen University, Germany, and the University of Lyon, France, I conducted research in organic and inorganic chemistry, in particular, have expertise in *hydrogenation and hydrogen borrowing reactions via homogeneous catalysis methods*. I was graduated Summa Cum Laude and awarded the “Ernst Haage Prize” from the Max-Planck Society and the “Borchers-Plakette Prize” from RWTH Aachen University for my doctoral work.

Following the first post-doctoral studies at MPI-CEC, my research area was to minimize the carbon footprint via chemical reactions such as *the conversion of CO₂ and CO to valuable organic products employing homogeneous catalysis*.

Subsequently, the second post-doctoral research at the University of Münster incorporates *the generation of novel 3D-chemical space via the hydrogenation of readily available 2D-aromatic compounds using heterogeneous catalysts*. Based on my research work, I was awarded the “Chinese-German Chemical Association (CGCA) Young Researchers Award”.

Throughout the time of my research framework, I have obtained the depth knowledge of designing efficient homogeneous and heterogeneous catalysts which were utilized for the activation of organic molecules as well as difficult moieties such as CO₂, CO, and arenes using hydrogen as a reducing agent generating sustainable and environment-friendly catalytic processes.