NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE | Graduate College

Joint PhD Project Description

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Home University	Nanyang Technological University	
Partner University	University of Groningen	
Supervisors	**Home**	**Partner**
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Project Title	**Design of High Performance Solid Catalysts for CO_2 Conversion**	
Project Description (200-300 words)	CO_2 hydrogenation using low-carbon hydrogen to liquid fuels/chemicals (Gas-to-Liquid) has become a promising route to achieve carbon circularity and neutrality. Due to the inertness of CO_2 molecule and multiple pathway for CO_2 conversion, designing active and selective catalysts is of paramount importance towards potential large-scale and tailored applications. Despite great efforts spent in the past decades, there are still substantial knowledge gap and challenges to be addressed to make the processes economically viable. The proposed PhD project will be focused on designing of high-performance CO_2 conversion catalysts for desired products and elucidation of reaction mechanism, combining isotope/reaction kinetics study and advanced characterization. NTU lab is well equipped with materials synthesis facilities including a flame synthesis system which can be used to synthesize a wide range of metal/ metal oxide active species highly dispersed on metal oxide supports. The partner lab at University of Groningen offers bench-scale reactor systems for kinetic and mechanistic study. The collaboration is expected to reveal detailed structure-activity correlations of the catalysts towards rationale design of high performance catalysts for CO_2 conversion.	
Program/Center Website(s)	N.A.	
Additional Information (e.g., files with project details)	NA	