Project: Synthesis of polyethylene with controlled microstructure from α-diimine Ni complexes

Description

In this Master Thesis, your work will be mainly concentrated on the development of novel and functionalized α-diimine Ni complexes to catalyze ethylene polymerization. Through careful design involving systematic variation of ligands of the α-diimine Ni complexes, you will be able to tune their catalytic behavior and the final polymer property. The catalyzed polymerization will be run and optimized under different reaction conditions, including the cocatalyst molar ratio, temperature, pressure, and time. High temperature GPC, NMR, and DSC will be used to evaluate the exact property of the final polymers, such as the molecular weight, melting point and branching density. Hence, you will work collaboratively with other team members to learn and discover the method to synthesize the new α-diimine ligands/ complexes, and run ethylene polymerization.

Your profile

You would be the right candidate if you are good at/ interested in molecular design, polymers synthesis, and material characterization. Preferably, you:

- are currently a master student in Organic Chemistry / Polymer Chemistry / Chemical Engineering/ Catalytic Chemistry or such related field;
- are willing to learn new knowledge and experimental skills;
- are good at speaking English, communication skills, and able to work effectively and independently under certain help and instructions.