Faculty of Engineering
Summer Research Program 2021-2022

Project Title: Oxygen capture with MOFs

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Objective

To examine the adsorptive properties ($N_2$ and $O_2$) of a series of metal organic frameworks which show potential for reversible and selective oxygen uptake.

Project Details

Our multi-disciplinary group has been developing metal organic frameworks (MOFs) for reversible and selective oxygen adsorption. We have several bimetallic frameworks which show promise for this purpose. Metal centers within the framework, shown in orange of Figure 1, provide high affinity binding sites for the oxygen species. We are particularly interested in the long-term cycling of these frameworks with oxygen.

![MOF-74 diagram](image)

Figure 1. Diagram of MOF-74, with carbon atoms shown in grey, oxygen in red, and metal centers in orange.

Prerequisites

Chemical engineering background required.