



Adsorbent Materials for Gas Separation and Storage

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The Glover research group builds novel adsorbent materials for gas separation and storage. Particular interest is placed on understanding the impact of tuned surface chemistry for targeted adsorption. For example, Prof. Glover recently published a paper detailing the importance of tuning metal organic framework (MOF) adsorbent surface chemistry to target specific adsorbate gases. Specifically, it was shown that MOF materials can exceed the performance of activated carbon when removing toxic industrial chemicals from air. (Chem. Eng. Sci. 2011) Also, Prof. Glover has studied adsorption of gases on non-porous magnetic nanoparticle surfaces and has shown that the adsorption capacity is dependent on the metals that comprise the particle. The magnetic particles also show a change in magnetism upon adsorption. (Langmuir 2012, 2013) In addition to measuring adsorption capacity, Prof. Glover has expertise in the identification of mass transfer mechanisms and recently co-authored a paper detailing variance of mass transfer resistances in activated carbon amongst different low volatility alkanes. (Langmuir 2013) Although these topics appear isolated, they are each connected by a need to understand surface chemistry and mass transfer.