

Abstract Submitted  
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**Study of Carbon Monoxide and Neon Adsorption on Zeolitic Imidazolate Framework -8 (ZIF-8)** DINUKA H. GALLABA, CHRIS MANDRELL, ALDO D. MIGONE, Department of Physics, Southern Illinois University, Carbondale IL 62901 — Zeolitic Imidazolate frameworks (ZIFs) are porous Metal Organic Framework materials that have zeolite-like structures. We will present the results of an adsorption isotherm study of carbon monoxide in ZIF-8. The adsorption isotherms display multiple sub-steps. Similar substeps have been observed before with xenon and O<sub>2</sub> in ZIF-8; they have been interpreted as indicating a pressure-induced structural transition or “gate-opening” of the ZIF-8 at low temperatures. We have conducted our measurements for CO on ZIF-8 at temperatures in the range between 72K and 105K. All the isotherms measured in this range have clear sub-steps (which reflect an increase in CO loading due to gate-opening transition). We have used the isotherm data to calculate the isosteric heat of adsorption as a function of loading for this system. We found a change in isosteric heat at the loading corresponding to the structural transition; a similar feature was observed in previous experiments conducted on Xe and on O<sub>2</sub> in the same sorbent. We have preliminary results for the sorption of neon in ZIF-8. The isotherm data for neon will be presented and compared data for other gases.

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