## MONT Empower Scholars Program

Nicholas P. Stadie

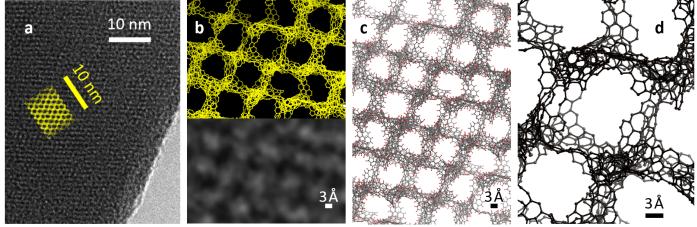
Chemistry & Biochemistry, Materials Science

nstadie@montana.edu

www.montana.edu/stadiegroup

STADIE RESEARCH GROUP

Our research spans the fields of solid-state, physical, and materials chemistry; we explore new synthesis routes to carbon-based energy storage materials. We have a special fondness for materials with molecular channels built into their structure, allowing for interesting chemistry to take place inside. These materials are used to store energy-rich fuels like hydrogen and can also be used as the electrodes in batteries or supercapacitors.



**Above.** Zeolite-templated carbon (ZTC) is a material of great interest to our group. Transmission electron microscopy reveals its atomic structure at the ~1 nm (10<sup>-9</sup> meters) length scale. Further computational modelling provides an understanding of the finer details, at <1 Å (10<sup>-10</sup> meters) resolution.

Undergraduate researchers of many diverse backgrounds undertake research projects in our group: from electrical engineers to chemical engineers, chemists, geologists, mechanical engineers, and computer scientists.

We have a demanding, but fun- (and safety-) oriented research environment, designed to ensure that every student has a unique research topic and scientific hypothesis.

Relevant MONT facilities: electron microscopy, various spectroscopic techniques, and deposition/sputtering. Prerequisites: interests in energy storage and a willingness to learn new things.



The Montana Nanotechnology Facility (MONT) is an NSF-funded grant that supports shared-use lab facilities at MSU. One goal of MONT is to provide access to nanoscience related research along with associated facility training for undergraduate students. NSF Award Number ECCS-202539.

