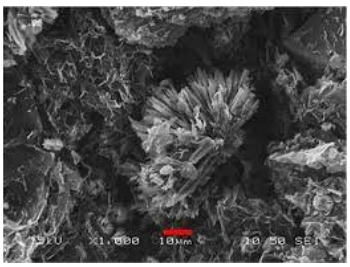

DESIGN MATTER(S)

This studio provides a method for exploring the scalability of principles that translate from the nanoscale of chemistry to the macro scale of architecture. Students will learn about commonalities between the two fields of study and will address the disciplinary gap by exploring overlapping innovative processes that pertain scale to the manipulation of matter. Specifically, architecture students will learn from their collaboration with the chemistry department to inform spatial, formal and material design research applied to design a Nanoscale Materials Museum. By allowing scientific principles to influence architectural design, the museum structure itself becomes an educational tool for communicating and presenting chemistry through experimental means that encourage occupation and play.

Investigation of mixtures will play an integral role in the studio both at nanoscale and macroscale. Mixtures at nanoscale lead to the design of new materials, while mixtures at macroscale involve the mixing of space, mixing of people, etc. Students will spatially and formally explore chemistry mixtures and their resulting reactions as a means for interrogating a range of possible design results.

OBJECTIVES

- To explore overlapping innovative processes pertaining to scale and the design of matter in the disciplines of chemistry and architecture
- Develop habits and methods that allow students to navigate the design process while working with and learning from collaborators
- To use constraints as creative opportunities which allow for designs that evolve from complexity rather than complicatedness
- Gain a better understanding of design and fabrication procedures, testing and iterating through alternatives, and critically assessing experimental processes
- Develop an effective and coherent design process from conceptualization to actualization

METHOD

The course will involve related assignments that culminate into a final project. The initial assignments involve design research that stems from collaboration with chemistry to explore overlapping innovative processes that pertain to scale and the manipulation of materials. The intent is to discover novel spatial, formal, and materials results. The second part draws from that collaboration to inform the design of a Nanoscale Materials Museum and the third part involves the development of that design through large scale models and physical prototypes of proposed fabrication strategies.

Briefs are issued for each assignment, outlining objectives, methods, evaluation criteria, and important dates. Work is reviewed in a variety of ways: in one on one discussions with the instructor via desk crits; in small-group informal settings, with and without guest critics; in more formal settings with guest critics (including those from the department of chemistry) and among the instructor and students.

Images to left: Scanning electron microscopy images of Metal Organic Frameworks (MOFs) (1) Hybrid Metallic Crystals, Image from Seeker (2) MoF Compound Sets Image from C&NE American Chemical Society (3) HKUST-1@GO-2.5. The scalebar 10 um (4) Crystals CXD from C&NE American Chemical Society