The Synthesis and Application of 3D Carbon Frameworks with Periodic Structure

Nick Stadie (Montana State University)

Host: Maria Ibáñez

The Synthesis and Application of 3D Carbon Frameworks with Periodic Structure

Carbon is one of the most versatile elements on the periodic table when it comes to bonding; Smalley famously says that carbon has "bonding chutzpah". However, rationally connecting carbon into three-dimensional open (read: porous) frameworks with long-range ordering remains challenging. Why? In this work we begin with a vision toward idealized 3D connected frameworks based on Schwarz's minimal surfaces known as "schwarzites" and explore one promising approach to the synthesis of schwarzites via hard templating. The so-realized materials are not yet schwarzites but have interesting properties in their own right, and are referred to as "zeolite-templated carbon" (ZTC). Herein, we will compare ZTC to other classes of rationally designed carbon frameworks and report on the many applications of ZTC as a model material for fundamental studies of energy storage on carbon-based surfaces.

Monday, September 12, 2022 03:00pm - 04:00pm
ISTA Campus Heinzl Seminar Room/ Office Building West

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.