



Talk

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

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## 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



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