

You are cordially invited to attend this seminar to be held on

Monday, May 15th, 15:00
Room 118, Wolfson Mechanical Engineering Building

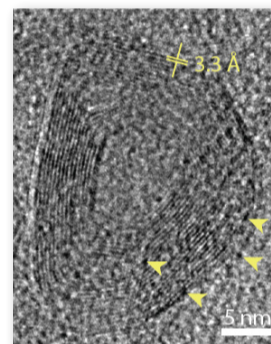
**Rational design of microstructure, composition,
and electrocatalysis in carbon materials**

Prof. David Eisenberg

Schulich Faculty of Chemistry, Technion – Israel Institute of Technology

Abstract

Carbon materials – highly porous, partially graphitic, and hetero-doped – are rising electrodes in electrochemical devices for energy storage. This is a curious twist of history: for many millennia carbon was mostly a low-value energy source, only good for burning up. These days, we find carbon electrodes in power sources as diverse as batteries, fuel cells and supercapacitors. The microstructure of such carbons – affecting much of their electrochemical function – is hard to design and control. We have recently reported a family of N-doped, hierarchically porous carbons, whose structure and composition can be tuned rationally, opening the way to in-depth studies of structure–activity links. These carbons are derived from metal-organic frameworks (MOFs), whose composition can be controlled and correlated to the final carbon structure, and ultimately, electrocatalytic properties. This talk will discuss design principles of carbon-based electrocatalysis, focusing on elegance of synthesis, separation of structural variables, and understanding electrocatalytic function.



Biosketch



Prof. David Eisenberg studied Chemistry at the Hebrew University of Jerusalem (2002-2011, with Prof. Roy Shenhar). In parallel, he served as an R&D officer in Rafael developing transparent oxide ceramics, taught chemistry in an international high-school, and operated a small online business. David spent 2.5 years at the University of Texas at Austin (USA) as a Fulbright / Ilan-Ramon Fellow with Prof. Allen Bard and Prof. Adam Heller, and 2 years in the Netherlands leading an electrocatalysis team at the Heterogeneous Catalysis and Sustainable Chemistry group of Prof. Gadi Rothenberg. On February 2017, David joined the Schulich Faculty of Chemistry at the Technion. His group (www.david-eisenberg.com) focuses on materials science and electrocatalysts, with a special interest in energy storage and in 3D carbons with designed microstructure and doping.