CARBON TO METAL COATING INSTITUTE at Queen's University

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CHE117

Chemistry of organic layers on inorganic surfaces: from flat Au(111) to CdSe nanocrystals

Abstract

Semiconductor nanocrystals, also known as colloidal quantum dots, were the first man-made objects so small that quantum mechanics becomes necessary for explaining their properties.
Four decades of research were necessary to achieve an acceptable quality of nanocrystals, finally bringing them to commercialization in TVs and smartphones. Progress was hindered by atomic-scale surface imperfections. The impossibility to directly observe even with the best electron microscopes makes them hard to understand and fix.
In this talk, I will discuss my journey studying the nanocrystal surfaces using computational quantum chemistry methods, and using self-assembled monolayers on Au(111) as inspiration and source of additional knowledge.

This seminar is hosted by the Carbon to Metal Coating Institute,