

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

Wednesday, December 30<sup>th</sup>, 16:00  
Room 103, Engineering Class (Kitot) Building

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## Metal Organic Frameworks: a Platform for Electrocatalytic Fuel Generation

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Dr. Idan Hod

Department of Chemistry, Northwestern University

Over the last two decades, metal organic frameworks (MOFs) have attracted a great deal of scientific interest due to their extremely high porosity and surface areas. Traditionally, the vast number of combinations of metal node and ligand-based properties made MOFs exciting candidates for a wide variety of applications including gas storage, chemical separation and catalysis, in which bulk crystalline powders or solution dispersions of MOFs have been used. However, to date only a few attempts have been made to explore the incorporation of MOFs into thin films to be used in electrocatalytic reactions.

In this talk, I will present some of our latest findings in the synthesis of MOF-based thin films and demonstrate that an electrode-supported MOF scaffold could serve as a versatile platform when utilized in an electrochemical system. A focus will be given on the study of the physical mechanisms that govern charge transport properties in redox-active MOFs, as well as on new strategies developed to control MOFs conductivity. Additionally, the different advantages of using MOFs in electrocatalysis will be elucidated and demonstrated by our recent proof-of-principle work on MOF-based systems for electrocatalytic Hydrogen Evolution Reaction (HER), CO<sub>2</sub> reduction and Oxygen Evolution Reaction (OER).

### Biosketch



Idan Hod completed his B.Sc and M.Sc (cum laude) studies in the Department of Chemistry at Bar Ilan University, Israel. During his Ph.D., his research focused on the understanding of the fundamental physical mechanisms of charge transfer processes in Quantum Dot Sensitized Solar Cells (QDSSCs) using photoelectrochemical characterization methods. He then moved to the Department of Chemistry in Northwestern University (Evanston, IL, USA) as a Fulbright Postdoctorate Scholar, where he focuses on studying new approaches for Solar Fuels applications using Metal-Organic Frameworks