הפקולטה לכימיה ע"ש שוליך
טכניון – מכון טכנולוגי לישראל

Faculty of Chemistry
SCHULICH
Technion, Israel Institute of Technology

המעבדה לכימיה אורגנית ואי-אורגנית

סמינר

יום ב', 19.12.2022 בשעה 11:30, באולם כימיה 1

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בנושא:

Induced Catalytically Active Sites over 'Rigid' Materials

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Induced Catalytically Active Sites over 'Rigid' Materials

In this talk, I will aim to pose more questions than answers that I could provide in some illustrations of dynamic structure-catalysis relationships. As generally known, the elucidation of active sites' structure in solid catalysts under real reaction conditions is one of the most important challenges facing the scientific community. There is an increasing amount of evidence by the in situ/operando characterization that active sites can be generated by the interaction of substrate molecules with inorganic catalysts as akin to enzyme-substrate interaction, which can result in the significant promotion of catalytic performance. In addition, surface rearrangement could occur under reaction conditions, which may cause dynamic changes in the active sites. Therefore, the real active sites under working conditions could be significantly different from those characterized under ex situ conditions. Yet, current limitations in state-of-the-art characterization techniques regarding spatial, temporal and temperature/pressure gaps are sometimes unable to provide the answers for the understanding. In-situ/operando characterization using modern designated synchrotron offers exciting possibilities. I will give you some examples how Frustrated Lewis Pair (FLP) sites can be created and monitored, which offer to catalyse a wide range of chemical reactions. I hope this talk could stimulate new science/new instrumentation in catalysis and other disciplines in future.