Smadar Attia

Date and place of birth: 04/01/87, Rehovot

Nationality: Israeli

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Education

Ph.D. Chemistry

Department of Chemical Physics
Fritz Haber Institute of the Max Planck Society
Berlin, Germany
December 2014 – October 2019
Anticipated Defense April 2020

Doctoral research in the field of heterogenous catalysis and surface science using molecular beam and IRAS techniques, under the supervision of Prof. Dr. Hajo Freund and the advisement of Prof. Dr. Swetlana Schauermann. PhD thesis titled:

"Ligand-directed heterogenous catalysis on model surfaces"

M.Sc. Chemistry, February 2013

Faculty of Natural Sciences
Ben-Gurion University of the Negev
Beer-Sheva, Israel
GPA: 94.5/100

Research in the field of coordination chemistry of transition metal complexes using pulse radiolysis and spectroscopical techniques (EPR, NMR and UV-Vis), under the advisement of Prof. Dan Meyerstein. M.Sc. thesis titled:

"Binding of transition-metal macrocyclic complexes to solid stable matrices"

B.Sc. Chemistry, May 2009

Faculty of Mathematics and Science
Hebrew University of Jerusalem
Jerusalem, Israel
GPA: 89.6/100

- Dean's List for academic achievement
- Elving Prize for High Achievements in Analytical Chemistry 2006

Career

Research Scientist

Nuclear Research Center Negev (NRCN)
Department of Physical Chemistry
Dimona, Israel
February 2019 – present

Surface/interface chemistry/physics, temperature programmed techniques (TPRS, TPD, TGA, DSC), combining and coupling molecular beam techniques and mass spectrometry.

Doctoral Research Assistant

Department of Chemical Physics
Fritz Haber Institute of the Max Planck Society
Berlin, Germany
October 2014 – October 2016

Institute of Physical Chemistry
Christian-Albrechts University of Kiel
Kiel, Germany
October 2016 – December 2018

My research focuses on atomistic-level understanding of chemical reactivity of heterogeneous model catalysts functionalized with organic ligand assemblies, as well as new concepts for the knowledge-based design of new catalytic materials with desired properties, e.g. high selectivity in multi-pathway surface reactions. A unique combination of surface sensitive techniques is applied including molecular beam techniques, infrared reflection absorption spectroscopy (IRAS) and STM to elucidate the molecular reaction mechanisms and kinetics of multi-pathway reactions occurring in these complex interfaces. The thesis project was carried at the FHI in the department of Chemical Physics, directed by Prof. Hans-Joachim Freund and under the advisement of Prof. Swetlana Schauermann who obtained professorship in the Institute of Physical Chemistry at the CAU. Therefore, the project (ERC grant) including the experimental setup has been moved.

Master's Graduate Research Assistant

Faculty of Natural Sciences
Ben-Gurion University of the Negev
Beer-Sheva, Israel
October 2010 – February 2013

Under the advisement of Prof. Dan Meyerstein, I have synthesized redox agents that can be covalently/non-covalently bound to solid stable matrices, and characterized their chemical stability, electrochemical and chemical redox properties.
The following research areas were explored:

- Kinetics of formation and decomposition of transition metal macrocyclic complexes in different oxidation states in aqueous solutions using pulse radiolysis techniques and EPR (Electron Paramagnetic Resonance)
- Electrocatalytic studies of transition metal macrocyclic complexes supported on silica NPs
- Development of electron exchange columns using various types of Sol-gel techniques.

Research Scientist

Israel Atomic Energy Commission (IAEC)
Tel-Aviv, Israel
September 2008 – September 2014

Under collaboration with the Nuclear Research Center Negev (NRCN) I was the interim head of the Gas –Solid group in the department of Physical Chemistry. I have operated an atmospheric pressure TPD-SMB-MS apparatus for studying mainly the adsorption of water on oxidized metallic surfaces under realistic conditions.

Languages: Hebrew (Native), US English (Fluent), German (beginner)