The Inter-Academy Symposium
of the
Israel Academy of Sciences and Humanities
and the
German National Academy of Sciences, Leopoldina

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ORGANIZING COMMITTEE
David Milstein – The Weizmann Institute of Science, Rehovot
Helmut Schwarz – Technische Universität Berlin

Jerusalem
9-10 November 2015
Greetings and Opening Remarks

Nili Cohen
President, The Israel Academy of Sciences and Humanities

Jörg Hacker
President, The German National Academy of Sciences, Leopoldina

FIRST SESSION

Chair: Hans Joachim Freund
Department of Chemical Physics
Fritz Haber Institute of The Max Planck Society, Berlin

09:30 - 10:00  Itamar Willner
The Institute of Chemistry
The Hebrew University of Jerusalem
DNA NANOSTRUCTURES: FROM BASIC SCIENCE TO PRACTICAL APPLICATIONS

10:00 - 10:30  Thomas Carell
Department of Chemistry
Ludwig-Maximilians-University, München
THE DISCOVERY AND FUNCTION OF NEW DNA BASES

10:30 - 11:00  Coffee Break

11:00 - 11:30  Manfred Reetz
Faculty of Chemistry
Marburg University, Marburg/Lahn
EVOLUTION IN THE TEST TUBE: A PROLIFIC SOURCE OF CATALYSTS FOR ASYMMETRIC TRANSFORMATIONS
11:30 - 12:00  **Leeor Kronik**  
*Department of Materials and Interfaces*  
*The Weizmann Institute of Science, Rehovot*  
**THEORETICAL PHOTOEMISSION AND OPTICAL SPECTROSCOPY WITH DENSITY FUNCTIONAL THEORY: NEW IDEAS FOR LONG-STANDING PROBLEMS**

12:00 - 12:30  **Hans-Günther Schmalz**  
*Department of Chemistry*  
*University of Cologne*  
**SMALL MOLECULE SECONDARY STRUCTURE MIMETICS AS INHIBITORS OF PROTEIN-PROTEIN INTERACTIONS**

12:30 - 14:00  **Lunch**

**SECOND SESSION**

**Chair:**  **Raphael Mechoulam**  
*Department for Medicinal Chemistry and Natural Products*  
*The Hebrew University of Jerusalem*

14:00 - 14:30  **Thorsten Bach**  
*Department of Chemistry*  
*Technische Universität München*  
**CHIRALITY AND LIGHT: ENANTIOSELECTIVE CATALYSIS OF PHOTOCHEMICAL REACTIONS**

14:30 - 15:00  **Ilan Marek**  
*Schulich Faculty of Chemistry*  
*Technion - Israel Institute of Technology, Haifa*  
**RECENT ACHIEVEMENTS IN STEREOSELECTIVE SYNTHESIS**
15:00 - 15:30  Gerhard Erker  
Institute of Organic Chemistry  
Universität Münster  
FRUSTRATED LEWIS PAIR CHEMISTRY: PRINCIPLE AND SOME RECENT RESULTS

15:30 - 16:00  Coffee break

16:00 - 16:30  Lia Addadi  
Department of Structural Biology  
The Weizmann Institute of Science, Rehovot  
BIOGENIC MINERALIZED MATERIALS: ANCIENT TECHNOLOGIES FOR THE FUTURE

16:30 - 17:00  Klaus Müllen  
Max Planck Institute for Polymer Research, Mainz  
THE CHEMIST’S WAY TO NANOSTRUCTURED CARBON MATERIALS

17:00 - 17:30  Reshef Tenne  
Department of Materials and Interfaces  
The Weizmann Institute of Science, Rehovot  
INORGANIC NANOTUBES AND FULLERENE-LIKE NANOPARTICLES AT THE CROSSROAD OF SOLID-STATE CHEMISTRY AND NANOTECHNOLOGY

17:30 - 18:15  Keynote Lecture

Chair:  Joshua Jortner  
School of chemistry  
Tel Aviv University

Gerhard Ertl  
Fritz-Haber Institute  
The Max-Planck Society, Berlin  
COMPLEXITY IN CHEMISTRY

19:00  Dinner
THIRD SESSION

Chair: Walter Thiel  
Max-Planck-Institut für Kohlenforschung  
Mülheim/Ruhr

09:30 - 10:00  Herbert Mayr  
Department of Chemistry  
Ludwig-Maximilians-University, München  
QUANTIFICATION OF ORGANIC REACTIVITY: A HISTORICAL PERSPECTIVE

10:00 - 10:30  Yitzhak Apeloig  
Schulich Faculty of Chemistry  
Technion - Israel Institute of Technology, Haifa  
THE RECENT REVOLUTION IN SILICON CHEMISTRY. STABLE MULTIPLE BONDS, SILENES AND RADICALS

10:30 - 11:00  Peter R. Schreiner  
Institute of Organic Chemistry  
Justus-Liebig University, Giessen  
TUNNELING CONTROL OF CHEMICAL REACTIONS

11:00 - 11:30  Coffee break

11:30 - 12:00  Joachim Sauer  
Department of Chemistry  
Humboldt University, Berlin  
HOW DO WE KNOW WHERE THE ATOMS ARE?
12:00 - 12:30  Sason Shaik  
The Institute of Chemistry and the Lise Meitner-Minerva Center for Computational Quantum Chemistry  
The Hebrew University of Jerusalem  
CYTOCHROME P450: WHAT A WONDERFUL ENZYME IT IS!

12:30 - 13:00  Ronny Neumann  
Department of Organic Chemistry  
The Weizmann Institute of Science, Rehovot  
CATALYSIS - LEARNING FROM NATURE BUT DOING THINGS DIFFERENTLY – ABIOTIC AND SUPERBIOTIC REACTIONS

13:00 - 14:30  Lunch

FOURTH SESSION

Chair:  Ehud Keinan  
Schulich Faculty of Chemistry  
Technion - Israel Institute of Technology, Haifa

14:30 - 15:00  Abraham Nitzan  
School of Chemistry  
Tel Aviv University  
LANDAU-ZENER EVOLUTION UNDER WEAK MEASUREMENT: MANIFESTATION OF THE QUANTUM ZENO EFFECT UNDER DIABATIC AND ADIABATIC MEASUREMENT Protocols

15:00 - 15:30  Frank Neese  
Max Planck Institute for Chemical Energy Conversion  
Mülheim an der Ruhr  
THE CHEMISTRY OF CLEAN ENERGY – LESSONS FROM NATURE
15:30 - 16:00  **Uri Banin**  
*Institute of Chemistry and the Center for Nanoscience and Nanotechnology*  
*The Hebrew University of Jerusalem*  
**SEMICONDUCTOR NANOCRYSTALS: A PLATFORM FOR MATERIALS CHEMISTRY AND PHYSICAL CHEMISTRY**

16:00 - 16:45  **Keynote Lecture**

**Chair:**  **Helmut Schwarz**  
*Institute of Chemistry*  
*Technische Universität Berlin*

**Dan Shechtman**  
*Materials Science and Engineering*  
*Technion - Israel Institute of Technology, Haifa*  
*Materials Science and Engineering*  
*Iowa State University*  
**QUASI-PERIODIC CRYSTALS, A PARADIGM SHIFT IN CRYSTALLOGRAPHY**

18:00  **Dinner**