

# Yale-Weizmann Encounter in the Biological, Physical, and Engineering Sciences

Tuesday, Jan. 7, 2014

Schmidt lecture hall, Chemistry Faculty

## Organizing Committee

**Nir Gov,**  
Weizmann Institute of Science

**Deborah Fass,**  
Weizmann Institute of Science

**Corey O'Hern,**  
Yale University

**Lynne Regan,**  
Yale University

## Support

The Yale-Weizmann Collaborative Program

The Raymond and Beverly Sackler Institute for Biological, Physical, and Engineering Sciences

WIS-CSP Foundation

Clore Center for Biological Physics

Kimmelman Center for Macromolecular Assemblies

## Conference Coordinator

**Irit Veksler**  
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- 09:00 Welcome and Introductions
- 09:15 **Lynne Regan** | Molecular Biophysics and Biochemistry, Yale University  
Designed Proteins: In Vivo and In Vitro
- 09:45 **Sarel Fleishman** | Biological Chemistry, Weizmann Institute of Science  
Why Reinvent the Wheel? Designing New Antibody Functions From Old Protein Fragments
- 10:15 **Coffee Break**
- 10:45 **Corey O'Hern** | Mechanical Engineering and Materials Science, Yale University  
Simple Models for Computational Protein Design
- 11:15 **Emmanuel Levy** | Structural Biology, Weizmann Institute of Science  
Promiscuous Protein-Protein Interactions - a Burden for the Cell and a Tool for the Biologist
- 11:45 **Simon Mochrie** | Physics and Applied Physics, Yale University  
Nucleosome Unwinding and Rewinding: Free Energy Landscapes, First Passages, and Time-resolved Transition Paths
- 12:15 **Michael Elbaum** | Materials and Interfaces, Weizmann Institute of Science  
Nucleocytoplasmic Transport: From Cellular Complexity to Simple Kinetics
- 12:45 **Lunch Break**
- 14:00 **Shalev Itzkovitz** | Molecular Cell Biology, Weizmann Institute of Science  
Single Molecule Approaches for Studying Gene Expression in Intact Mammalian Tissues
- 14:30 **Farren Isaacs** | Molecular, Cellular, and Developmental Biology, Yale University  
Programming Genomes to Expand Life's Functional Repertoire
- 15:00 **Roy Bar-Ziv** | Materials and Interfaces, Weizmann Institute of Science  
Two-Dimensional Reaction-Diffusion Compartments as Artificial Cells
- 15:30 **Coffee Break**
- 15:45 **Nick Ouellette** | Mechanical Engineering and Materials Science, Yale University  
Collective Dynamics of Laboratory Insect Swarms
- 16:15 **Ofer Feinerman** | Physics of Complex Systems, Weizmann Institute of Science  
Confidence and Influence in Ant Colonies
- 16:45 **Hui Cao** | Physics and Applied Physics, Yale University  
Artificial Selection for Structural Color on Butterfly Wings and Comparison to Natural Evolution
- 17:15 **Ron Milo** | Plant Sciences, Weizmann Institute of Science  
Rethinking Carbon Metabolism

Wednesday, Jan. 8, 2014

The David Lopatie Conference Centre

- 09:00 **Sean Barrett** | Physics and Applied Physics, Yale University  
Recent Progress in Multinuclear Magnetic Resonance Imaging of Hard and Soft Solids
- 09:30 **Samuel Safran** | Materials and Interfaces, Weizmann Institute of Science  
Why Cells Care About Their Mechanical Environment
- 10:00 **Coffee Break**
- 10:30 **Eran Bouchbinder** | Chemical Physics, Weizmann Institute of Science  
Cellular Mechanosensitivity: Cell Reorientation Under Cyclic Stretching
- 11:00 **Enrique De La Cruz** | Molecular Biophysics and Biochemistry, Yale University  
Actin Filament Severing by Vertebrate Cofilin is Driven by Linked Cation Release