

**6th Midwest Conference on Protein Folding,
Assembly and Molecular Motions**
McKenna Center for Continuing Education – University of Notre Dame

May 7, 2011

7:30 – 8:50 *Coffee, juice, and pastries*

8:50 – 9:00 *Opening Remarks* – Patricia L. Clark

9:00 – 9:30 **Opening Plenary Speaker:**

The folding of single domain proteins - Have we reached a consensus?

Tobin Sosnick

Institute for Biophysical Dynamics, University of Chicago, Chicago, IL

Proteins in Motion

Session Chair: <<<TBA>>

9:30 – 9:50 *Investigating Conserved Motions in Proteins: Defining the “Signaling Conduit” in Pin1*

Kimberly A. Wilson, Andrew T. Namanja and Jeffrey W. Peng

Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN

9:50 – 10:10 *Transient partial unfolding in E. coli DHFR*

Joseph R. Kasper and Chiwook Park

Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN

10:10 – 10:30 *Intramolecular diffusion rates control the aggregation propensity of intrinsically unfolded protein α -synuclein*

Basir Ahmad, Yujie Chen and Lisa J. Lapidus

Department of Physics & Astronomy, Michigan State University, East Lansing, MI

10:30 – 10:50 *Coffee Break*

Engineering Protein Folding, Stability & Binding

Session Chair: <<<TBA>>

10:50 – 11:10 *Reducing Lambda Repressor to the Core*

Maxim B. Prigozhin^a, Krishnarjun Sarkar^a, Dennis Law^b, Jed W. Pitera^b, William C. Swope^b and Martin Gruebele^{a, c}

^aDepartment of Chemistry, University of Illinois, Urbana, IL; ^bIBM Research, IBM Almaden Research Center, 650 Harry Road, San Jose, CA; ^cDepartment of Physics and Center for Biophysics and Computational Biology, University of Illinois, Urbana, IL

11:10 – 11:30 *Expanding Anfinsen's Principle: Controlling Protein Structure by Altering Local Translation Rate*

Ian M. Sander & Patricia L. Clark

Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN

11:30 – 11:50 *Purification of Amyloid Beta specific antibodies through Surface Plasmon Resonance detection*

Adam L. Yokom, Jamie C. Humes and John M. Finke

Department of Chemistry, Oakland University, Rochester, MI

11:50 – 12:10 *The influences of T cell receptor dynamics on pMHC recognition*

Daniel R. Scott and Brian M. Baker

Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN

12:10 – 1:15 *Lunch*

1:15 – 2:45 *Poster Session*

Novel Methods to Resolve Protein Structure

Session Chair: <<<TBA>>

2:45 – 3:05 *Automated real-space refinement of protein crystal and cryo-electron microscopy structures using a realistic backbone move set*

Esmael J. Haddadian¹, Haipeng Gong¹, Abhishek K. Jha^{1,2}, Xiaojing Yang¹, Joe DeBartolo¹, James R. Hinshaw², Phoebe A. Rice¹, Tobin R. Sosnick^{1,3,4} and Karl F. Freed^{2,4}

¹Department of Biochemistry and Molecular Biology; ²Department of Chemistry and The James Franck Institute; ³Institute for Biophysical Dynamics; ⁴Computation Institute, University of Chicago, Chicago, IL

3:05 – 3:25 *Folding mechanism of a helix-turn-helix protein from combined ¹³C-edited IR and mutational studies*

Ginka Buchner, Krista E. Amunson and Jan Kubelka

Department of Chemistry, University of Wyoming, Laramie, WY

3:25 – 3:45 *Modeling the hydration layer around proteins: HyPred*

Jouko Virtanen^{1,5}, Lee Makowski⁶, Tobin R. Sosnick^{2,3,4*}, Karl F. Freed^{1,4,5*}

¹Department of Chemistry, ²Department of Biochemistry and Molecular Biology, ³Institute for Biophysical Dynamics, ⁴Computation Institute, ⁵The James Franck Institute, The University of Chicago, Chicago, IL, ⁶Argonne National Laboratory

3:45 – 4:00 *Coffee Break*

Protein Folding in the Cell

Session Chair: <<<TBA>>

- 4:00 – 4:20 *Investigating the conformation of an autotransporter protein in the bacterial periplasm*
Esther Braselmann & Patricia L. Clark
Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN
- 4:20 – 4:40 *A Genetic Regulatory Network that Controls the Heat Shock Response in C. elegans*
Eric Guisbert¹, Daniel Czyz¹, Klaus Richter¹, Patrick McMullen², Richard Morimoto¹
1) Molecular Biosciences, Northwestern University, Evanston, IL.; 2) Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL.
- 4:40 – 5:10 **Closing Plenary Speaker:**
Transcription factors – from intrinsic disorder to function: A report on basic region leucine zippers (bZIPs)
Rahul K. Das¹, Scott L. Crick¹, Rohit V. Pappu^{1,2}
¹Department of Biomedical Engineering; ²Hope Center for Neurological Disorders, Washington University in St. Louis, St. Louis, MO
- 5:10 – 5:20 *Closing Remarks – Lisa Lapidus*
- 5:20 – 6:30 *Closing Reception*