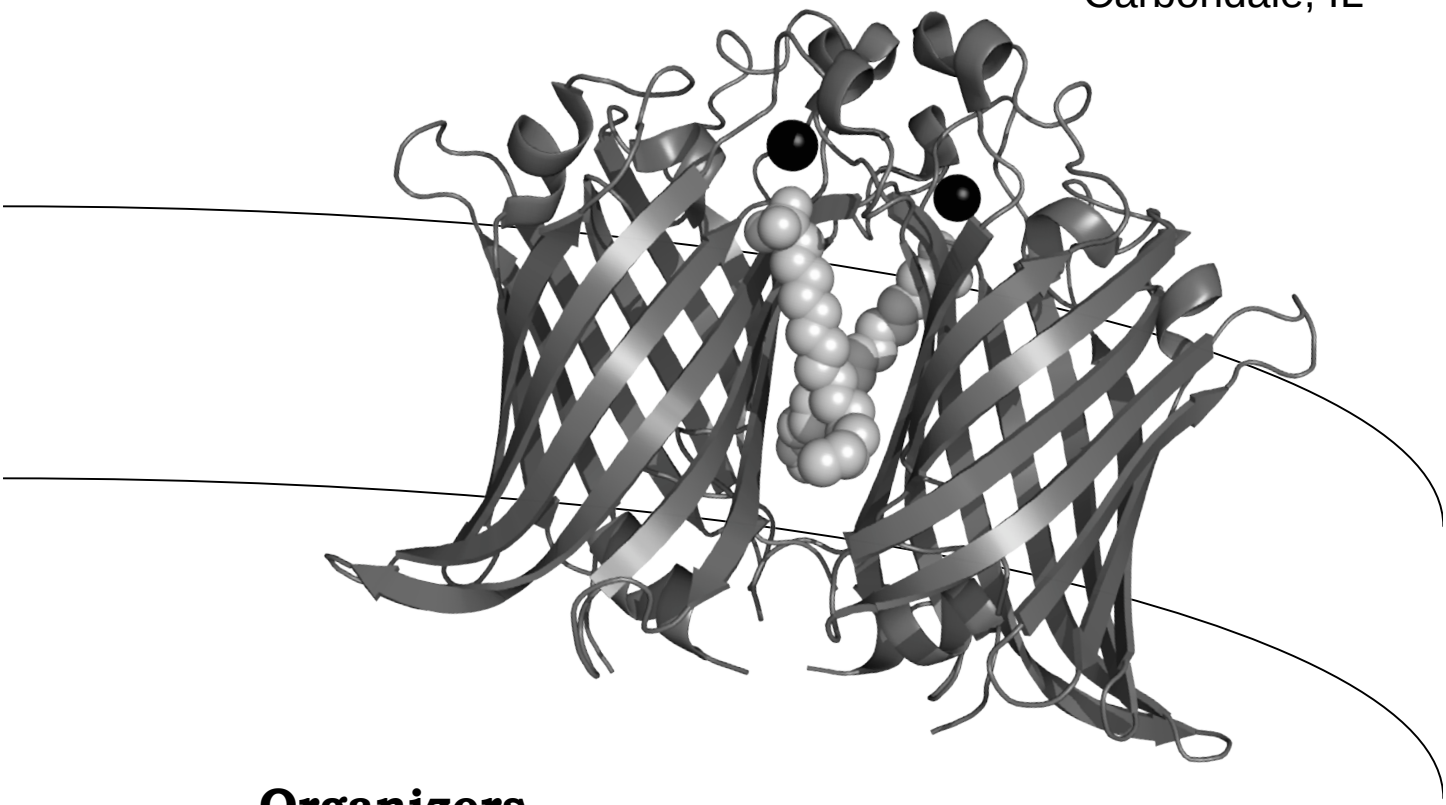
20th Annual Gibbs Conference on Biothermodynamics

Saturday, October 7 - Tuesday, October 10, 2006

Touch of Nature Environmental Center
Southern Illinois University
Carbondale, IL



Organizers

Karen Fleming & Rohit Pappu

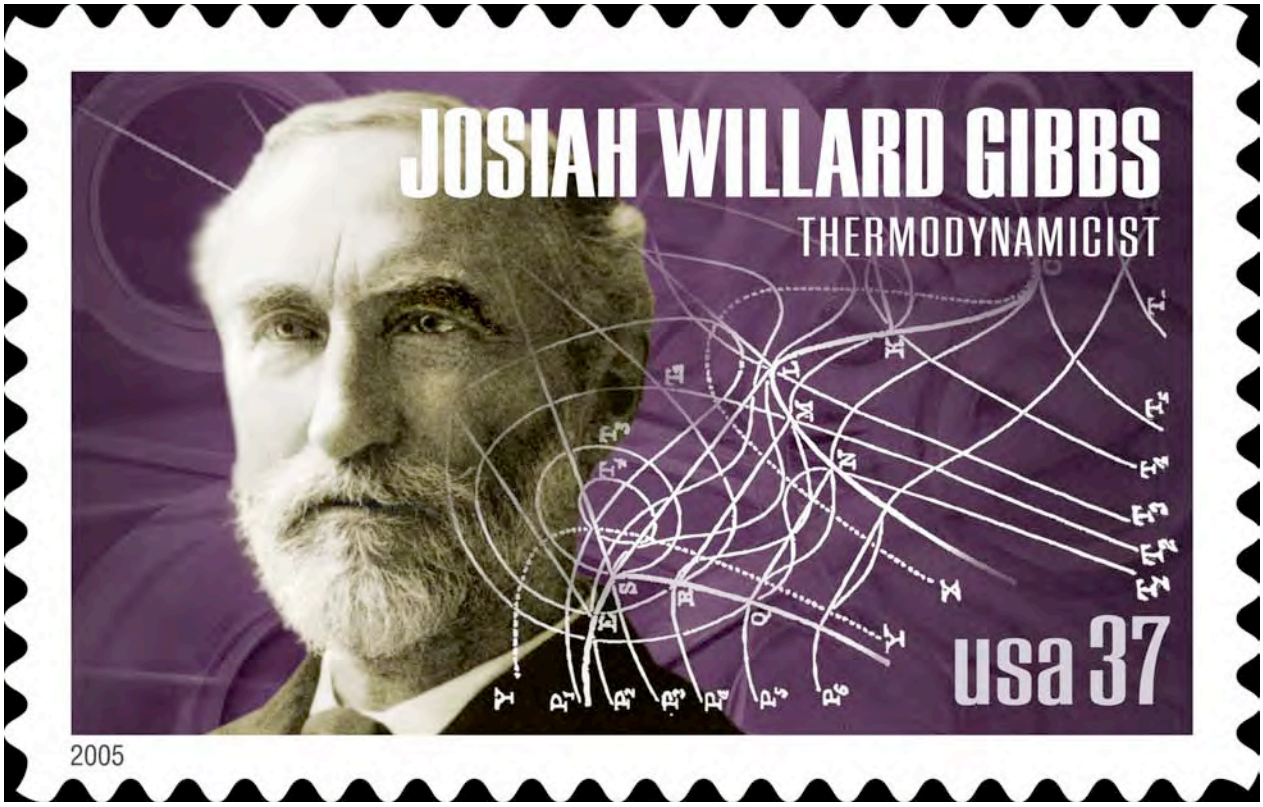
Sponsors

Calorimetry Sciences Corporation ◆ Dell Computers◆ Horiba Jobin Yvon ◆ ISS ◆ Jasco Corporation ◆ Micromath ◆ Microcal, LLC ◆ New England Biolabs ◆ Wyatt Technology Corporation

1. The Gibbs Conference on Biothermodynamics is only possible because of

Josiah Willard Gibbs

(1839 – 1903)



Let's face it, without Mr. Gibbs we'd all be doing something else, like genetics, or (gasp!) kinetics…

This Gibbs stamp was released by the USPS on May 5, 2005

2. Meeting Schedule

Saturday, October 7, 2006

4:00 – 7:00 pm Check In

7:00 – 10:00 pm Reception in Indian Room
Light refreshments and beverages

Sunday, October 8, 2006

7:30 – 8:30 am Breakfast in Freeberg Hall

8:30 – 8:35 am Welcome: Dorothy Beckett, Gibbs Society President
8:35 – 8:40 am Administrative Items: Karen Fleming and Rohit Pappu, 2006 co-organizers

Keynote I

8:40 – 8:45 Introduction
8:45 – 9:35 Madeline Shea (U Iowa)
Domain specific energetics of calmodulin-target interactions: So much homology, so many differences

9:45 – 10:05 Refreshment break

Session I: Protein Folding

Moderator: Jacqueline Harris (Mossing lab)

10:05 – 10:35 Doug Barrick (Johns Hopkins U)
Thermodynamic control of a protein folding pathway

10:40 – 11:10 Angel Garcia (RPI)
Molecular simulations of the folding/unfolding of small proteins and RNA oligomers

11:15 – 11:30 Gregory Benison (Oregon State University, Barbar lab)
Heteronuclear NMR identifies a folding domain in dynein intermediate chain distinct from the light chains binding domain

11:35-12:05 George Makhatadze (Penn State U)
Experimental studies of helix initiation, propagaion and termination

12:10 – 12:25 Alex Dajkovic (U Kansas Medical Center, Lutkenhaus lab)
A model for cooperative polymerization in a linear polymer

12:30 GROUP PICTURE followed by LUNCH

Session II: Non-ideal Solutions

Moderator: Alan Chen (Washington U, Pappu lab)

3:45 – 4:15	M. Thomas Record (U Wisconsin) *Using Solutes to Investigate Protein-DNA Interactions and Other Biopolymer Processes*
4:20 – 4:35	Zoya Ignatova (Max-Planck Institute) *Natural osmoprotectant inhibits the in vivo and in vitro aggregation of a polyQ containging protein*
4:40 – 5:00	Refreshment break
5:00 – 5:30	Jörg Rösgen (U Texas Medical Branch at Galveston) *Solvation in osmolyte solution and its impact on proteins*
5:35 – 5:50	Alan Grossfield (IBM T. J. Watson Research Center) *Role of cholesterol and polyunsaturated lipids in rhodopsin function: Insights from molecular dynamics simulations*
6:30	Dinner in Freeberg Hall
8:00	Posters and Beer/Wine I in Sledgefoot Hall First author last names “A” - “K”

Monday, October 9, 2006

7:30 – 8:30 Breakfast in Freeberg Hall

Keynote II

8:40 – 8:45 Introduction

8:45 – 9:35 Timothy Lohman (Wash U)
Thermodynamics and dynamics of E. coli SSB protein-single stranded DNA interactions

9:45 – 10:05 Refreshment break

Session III: Binding and Linkage Relationships

Moderator: Naomi Courtemanche (JHU, Barrick lab)

10:05 – 10:35 Jonathan Widom (Northwestern U)
A genomic code for nucleosome positioning

10:40 – 10:55 Stephen T. Whitten (U Texas Medical Branch at Galveston, Vince Hilser lab)
Protein X mimetics: the de novo design of synthetic peptides that facilitate structural conversion of the prion protein to disease-associated aggregates

11:00 – 11:15 Keith D. Connaghan-Jones (U Colorado Health Sciences Center at Denver, David Bain lab)
Thermodynamic comparison of the two progesterone receptor isoforms: residues unique to the B-isoform modulate response element occupancy

11:20-11:50 Mike Brenowitz (Albert Einstein)
Distinct contributions of native state topology, initial conformational ensemble and electrostatics to RNA folding

11:55 – 12:10 R. A. Maillard (U Texas Medical Branch at Galveston, J. Ching Lee lab)
Biophysical principles of a viral strategy to evade neutralization

12:15 Lunch
12:15 Gibbs business meeting: All previous organizers please attend.

Session IV: Linkage on Multiple Length and Time Scales

Moderator: Diana Wong (Washington U, Sept lab)

3:45 – 4:15	Enrique De La Cruz (Yale U) *Energetics and kinetics of cooperative cofilin-actin filament interactions*
4:20 – 4:35	Rebecca L. Davis-Harrison (U Notre Dame, Brian Baker lab) *Biophysical investigation of the TCR-pepMHC interaction: A comparative study of two receptors that bind a common ligand*
4:40 – 5:00	Refreshment break
5:00 – 5:30	Nathan Baker (Washington University) *Biomolecular solvation: from molecular to continuum models*
5:35 – 5:50	Claire A. Adams (U Kentucky, Michael Fried lab) *Biomolecular solvation: from molecular to continuum models*
6:30	Dinner in Freeberg Hall
8:00	Posters and Beer/Wine II in Sledgefoot Hall First author last names “L” - “Z”

Tuesday, October 10, 2006

8:00 – 9:00 Breakfast

Session V: Dynamics and Thermodynamics

Moderator: Katrina Schweiker (Penn State U, Makhatadze lab)

9:00-9:30	Silvia Cavagnero (U Wisconsin) *Role of unfolded state heterogeneity and landscape ruggedness in protein folding kinetics*
9:35 – 9:50	Alexey V. Krasnoslobodtsev (U Nebraska Medical Center, Lyubchenko lab) *Structure, dynamics and stability of synaptic DNA-SfiI complex: Single molecule force spectroscopy analysis*
9:55 – 10:10	Cosimo Antonacci (Seton Hall University, Sheardy lab) *Biophysical characterization of the human telomeric repeat* $(TTAGGG)_4$
10:15 – 10:45	Refreshment break
10:45 – 11:00	Rahul Roy (U Illinois, Urbana-Champaign, Ha lab) *DNA binding dynamics of E. coli single stranded DNA binding (SSB) protein*
11:05 – 11:35	Susan Marqusee (UC Berkeley) *Single molecule studies of protein folding and unfolding*
11:40	Box lunch and Departure