RESEARCH PRESENTATIONS (# indicates student, $ indicates Research Associate)

Invited Colloquia or Seminars:

Predicting Protein Stability and Flexibility

- Department of Physics and Optical Science Colloquium, UNCC. March 7, 2005.
- Biophysics Seminar, Physical Optics Corporation, Los Angeles, June 29, 2005

Predicting Protein Stability from a Free Energy Decompositio

- Physics and Astronomy Colloquium, CSUN Nov 12, 2003.
- Biophysics Seminar, Physics Department, Arizona State University. March 4, 2004.
- Computer Science Seminar, Rensselaer Polytechnic Institute. April 16, 2004.
- Seminar, IRG Materials Research Lab UCSB, April 28, 2004.
- Seminar, RISE-program, CSUN. June 28, 2004.

Understanding Protein Flexibility, Stability and Folding from a Mechanical Point of View

- Physics and Astronomy Colloquium, CSUN. Feb 13, 2002.
- Condensed Matter Seminar, Physics and Astronomy, UCLA. April 26, 2002.
- Chemistry Department Colloquium, California State Polytechnic University, Pomona. May 7, 2002.
- Chemical Engineering Department, Colorado State University. June 28, 2002.
- Biophysics Seminar, Physics and Astronomy Department, Michigan State University, Aug 9 2002.
- Seminar Series, Chemistry Department, University of California, Irvine. Sept 6, 2002.
- Seminar Series, Department of Mechanical Engineering, Yale University, Dec 18, 2002

Conformational Flexibility in Protein Structure: Can it be Used Like a Fingerprint?

- NASA-JPL PAIR program at CSUN. Oct 2, 2001.

Characterizing Conformational Flexibility in Proteins

- Department of Chemical Engineering, Colorado State University. June 13, 2001.
- Seminar, RISE-program, CSUN. June 29, 2001.

Characterizing Conformational Flexibility in Proteins with a FlexPrint: Working Toward a Finger Printing System

- Graduate Student Seminar: Methods in Computational Biology Group, UCLA. July 11, 2000.

Generic Rigidity in Two and Three Dimensions and its Applications to Network Glasses and Protein Structure

- Mathematical Physics Institute at CSUN. Sept 27, 1999.

Invited Talks at Science and Mathematics Meetings:

1. *Predicting Protein Stability Using Network Rigidity at Finite Temperatures*
   Second International Conference on Multiscale Materials Modeling (MMM-II), in focus session "Multiscale Modeling of Biomaterials" at UCLA, Los Angeles, CA in Oct. 11-15, (2004).
2. *Protein Stability and Flexibility: Application to Network Rigidity*
   Modeling Protein Flexibility and Motions Workshop at Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff Canada, (Jul. 17-22, 2004).
3. *Network Rigidity at Finite Temperatures and Free Energy Landscapes*
   American Mathematical Society, Lawrenceville, NJ, in focus session: Geometry of Protein Modeling, (April 17-18, 2004).
4. *Predicting Protein Stability from a Free Energy Decomposition*
   Mathematics and Computer Science Workshop: The Geometry of Modeling Proteins, Bellairs Research Institute of McGill University, Holetown, Barbados, West Indies (Jan. 16-23, 2004).
5. *Generic rigidity of glasses and proteins*
   Mapping Materials Problems to Graph Algorithms, SIAM Annual conference, Atlanta GA (May 1999).
6. *Graph rigidity: Applications to material science and proteins*
   Canadian Mathematical Society, Kingston, Ontario (Dec 1998).
7. *Real-time protein domain evaluator and design tool*
   DIMACS – Combinatorial Clustering & Multi-Domain Protein Structure Analysis, Rutgers University, NJ (June 1998).
8. *Identifying floppy and rigid regions in proteins*
   Fundamental Materials Research Series: Rigidity theory and Applications, Traverse City, MI (June 1998).
9. *Generic Rigidity: The Pebble Game*
   Focus Session on Network Glasses, American Physical Society, St. Louis MO (March 1996).

Contributed Talks at Scientific Meetings: (since January 2000, presenter in **bold**)

1. Poster: **D.R. Livesay** and D.J. Jacobs, *Conserved quantified stability/flexibility relationships (QSFR) in an Orthologous RNase H pair*. Gordon Proteins Research Conference, Plymouth, NH, June 2005.
2. Talk: **D. J. Jacobs**, J. Hules[#], S. Green[#] and D. R. Livesay, *Quantifying Stability-Flexibility Relationships in Proteins*. 2005 American Physical Society March Meeting, LA CA March 21-25 (2005).
3. Poster: **Donald J. Jacobs**, S. Dallakyan[$], G. Wood[$] and Dennis R. Livesay, *The Mechanics of Protein Stability and Flexibility.* 49th Biophysical Society Annual Meeting, Long Beach, CA (Feb 12-16, 2005).
4. Poster: **Dundar Karabay**[#] *Thermodynamic Properties of Protein Backbone Hydrogen Bonds Predicted by a Quantum Mechanical Model*. 49th Biophysical Society Annual Meeting, Long Beach, CA (Feb 12-16, 2005). Non-specified Authors: Sargis Dallakyan[$] and Donald J. Jacobs.
5. Poster: **Moon S. Lee**[#], Gregory Wood[$] and Donald J. Jacobs, *Bioinformatic and Statistical Analysis of Thermodynamic Stability of Alpha-Helix to Coil Transition in Polyppeptides.* 49th Biophysical Society Annual Meeting, Long Beach, CA (Feb 12-16, 2005).
6. Poster: **Sargis Dallakyan**, Donald J. Jacobs and Dang. Huynh[#], *Quantifying Thermodynamic Stability and Flexibility in Bacterial Periplasmic Binding Proteins.* 49th Biophysical Society Annual Meeting, Long Beach, CA (Feb 12-16, 2005).
7. Poster: Donald J. Jacobs, Sargis Dallakyan[$], Gregory Wood[$] and **Dennis R. Livesay**. *Protein Thermodynamics from the 3D topological structure of the Native State*. 18th Symposium of the Protein Society, San Diego, CA (Aug. 14-18, 2004) & 17th Annual CSU Biotechnology Symposium (LA, CA Jan 14-15, 2005).
8. Poster: **Donald J. Jacobs**, Sargis Dallakyan[$], Gregory Wood[$] and Dennis R. Livesay. *Protein Thermodynamics from the 3D topological structure of the Native State*. Biopolymers Gordon Research Conference, Salve Regina University, Newport, RI (June 13-18 2004).
9. Poster: Dundar Karabay[#], **Sargis Dallakyan**[$] and Donald J. Jacobs. *Enthalpies and entropies for hydrogen bonds in proteins from quantum mechanics*. 48th Biophysical Society Annual Meeting, Baltimore, MD (Feb 14-18, 2004).
10. Poster: **Donald J. Jacobs**, Sargis Dallakyan[$], Gregory Wood[$] and Dennis R. Livesay. *Protein Thermodynamics from the 3D topological structure of the Native State*. 48th Biophysical Society Annual Meeting, Baltimore, MD Feb 14-18, (2004).
11. Talk: **Gregory Wood**[$], Sargis Dallakyan[$] and Donald J. Jacobs. *Protein Thermodynamics from the 3D Topological Structure of the Native State*, American Physical Society, Annual March Meeting, Montreal, Quebec Canada (March 22-26, 2004).
12. Poster: **G. Wood**[$], A. Heckathorne[#] and D. J. Jacobs. *Network Rigidity Calculations of Cold Denaturation*, American Physical Society, Annual March Meeting, Montreal Quebec, Canada (March 22-26, (2004).
13. Talk: **Chubynsky, M.V.**, Thorpe, M.F., Michigan State University, Jacobs, D.J., California State University, Northridge, Whiteley, W., York University Canada, *Rigidity of central-force elastic networks in three dimensions,* American Physical Society, Annual March Meeting, Austin Convention Center; Austin, TX (March 3-7, 2003).
14. Poster: Alicia Heckathorne[#], Greg Wood[$] and **Donald J. Jacobs**, *Understanding folding and stability from a mechanical point of view: The alpha-helix to coil transition revisited*. 47th Biophysical Society Annual Meeting, San Antonio, Texas (March 1-5, 2003).
15. Poster: Alicia Heckathorne[#] and **Donald J. Jacobs**, *The Alpha Helix to Coil Transition Revisited*, Biopolymers Gordon Research Conference, Salve Regina University, Newport RI, (June 16-21, 2002).
16. Poster: **Dang H. Huynh**[#], Jaime D. Osorio[#], Laura I. Gomez[#], Arnulfo Martinez[#] and D. J. Jacobs, *Comparison of Conformational Flexibility in Four Homologous Periplasmic Binding Proteins.* 46th Biophysical Society annual meeting. San Francisco, CA (Feb 23-27, 2002).
17. Poster: (*award winning*) **Dang Huynh**[#], J.D. Osorio[#], Laura I. Gomez[#], Arnulfo Martinez[#] and Donald J. Jacobs, *Comparison of Conformational Flexibility in Four Homologous Periplasmic Binding Proteins.* SACNAS (Society for Advancement of Chicanos and Native Americans in Science) National Conference, Phoenix Arizona, (Sept. 27-30, 2001).

18. Poster: **D.J. Jacobs** and Jeremy Hules[#], *Characterization of Conformational Flexibility in Hinge-Binding Proteins: Hierarchical Flexibility Maps in Terms of Dihedral Angle Internal Coordinates*. Protein Flexibility and Folding Workshop. Traverse City, MI (Aug 2000).
19. Poster: **D. J. Jacobs**, *Characterizing the Degree of Flexibility in Proteins*, Quantitative Challenges in the Post-Genomic Sequence Era. A workshop and symposium. San Diego, CA (Jan 2000).