

# MAXIM PRIGOZHIN

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## PERSONAL INFORMATION

Born July 15th, 1988 in Samara, Russia.

## EDUCATION

### 2009 – present UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, DEPARTMENT OF CHEMISTRY.

Ph. D. candidate in Chemical Physics.

Adviser: Dr. Martin Gruebele (fast protein folding *in vitro* and *in vivo*)

### 2005 – 2009 UNIVERSITY OF TORONTO, DEPARTMENTS OF CHEMISTRY AND PHYSICS.

H. B. Sc. with High Distinction in Chemistry and Physics.

Advisers: Dr. Ulrich Krull (analytical chemistry: DNA sensor development)

Dr. Claudiu Gradinaru (biophysics: single-molecule spectroscopy)

Dr. Virginijus Barzda (biophysics: non-linear microscopy).

## PUBLICATIONS AND PRESENTATIONS

1. **M. B. Prigozhin**, M. Gruebele.  
The fast and the slow: folding and trapping of  $\lambda_{6-85}$ .  
Journal of the American Chemical Society (accepted), **2011**.
2. S. Ebbinghaus, K. Meister, **M. B. Prigozhin**, A. L. DeVries, M. Havenith, J. Dzubiella, M. Gruebele.  
The A17L mutation of wf-AFP1 reduces anti-freeze activity by kinking the helix and reducing long-range protein-water coupling.  
Biophysical Journal (submitted), **2011**.
3. A. Dhar, **M. B. Prigozhin**, H. Gelman, M. Gruebele.  
Studying IDP stability and dynamics by Fast Relaxation Imaging in living cells.  
Edited by V. Uversky and A. K. Dunker  
Intrinsically Disordered Proteins: Volume I. Experimental Techniques, Springer, Berlin, **2011**. (book chapter)
4. Walters, P. L.; **Prigozhin, M. B.**; Takeshita, T. Y.; Xu, L.; Olivarez, F. M.; Gruebele, M.  
Conformational energy gaps and scaling of conformer density in chain molecules.  
Chemical Physics Letters, **2011**, 507, 15-18.
5. **Prigozhin, M. B.**; Sarkar, K.; Law, D.; Swope, W. C.; Gruebele, M.; Pitera, J.  
Reducing lambda repressor to the core.  
Journal of Physical Chemistry B, **2011**, 115, 2090-2096.  
(poster at 2nd US-Mexico Workshop in Biological Chemistry: Protein Folding, Misfolding and Design and a talk at the 6th Annual Midwest Conference on Protein Folding, Assembly, and Molecular Motions)
6. Algar, W. R.; **Prigozhin, M. B.**; Liu, B.; Krull, U. J.; Gradinaru C. C.  
Development of methods to study the conformational dynamics of quantum dot-oligonucleotide conjugates by single molecule spectroscopy.  
Proceedings of SPIE – The International Society for Optical Engineering, **2009**, 7386, art. no. 73860J.  
(meeting presentation and Photonics North 2009 conference proceeding)
7. **Prigozhin, M. B.**; Shiwsankar, P.; Algar, W. R.; Krull, U. J.  
Porous silicon: electrochemical microstructuring, photoluminescence and covalent modification.  
Proceedings of SPIE – The International Society for Optical Engineering, **2008**, 7099, art. no. 70991A.  
(meeting presentation and Photonics North 2008 conference proceeding)

## FELLOWSHIPS AND AWARDS

- 2011 – 2012** John C. Bailar Fellowship, University of Illinois at Urbana-Champaign. (\$27,000)
- 2011** 2nd US-Mexico Workshop in Biological Chemistry: Protein Folding, Misfolding and Design, Travel Award, NSF. (\$700)
- 2010 – 2011** Center for the Physics of Living Cells (CPLC) Teaching Fellowship, University of Illinois at Urbana-Champaign. (\$3,500)
- 2010 – 2011** Walter Brown Fellowship, University of Illinois at Urbana-Champaign. (\$4,000)
- 2008** University of Toronto Excellence Award, University of Toronto. (\$4,500)
- 2007** University of Toronto Excellence Award, University of Toronto. (\$4,500)

## RESEARCH EXPERIENCE

### 2009 – present GRADUATE STUDENT, UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN.

Adviser: Dr. Martin Gruebele.  
Experience to date:

Used protein modification, expression and purification techniques. Investigated fast protein dynamics with state-of-the-art laser techniques including *in vivo* cellular imaging coupled with fluorescence relaxation spectroscopy, *in vitro* temperature jump and pressure jump. Developed software that simulates the dynamics of fluorescently labeled semi-flexible chains.

### 2011 VISITING STUDENT, COLUMBIA UNIVERSITY.

Adviser: Dr. Julio Fernandez.  
Experience:

Did protein folding experiments using the force-clamp technique: application of atomic force microscopy (AFM) to protein folding.

### 2008 – 2009 RESEARCH STUDENT, UNIVERSITY OF TORONTO.

Adviser: Dr. Ulrich Krull, Dr. Claudiu Gradunaru.  
Experience:

Investigated the conformational dynamics of quantum dot-oligonucleotide systems using single-molecule fluorescence spectroscopy. Obtained experience in alignment and operation of the confocal single-molecule fluorescence microscope and single-molecule spectroscopy sample preparation.

Adviser: Dr. Virginijus Barzda.  
Experience:

Worked on controlling the spatial distribution of the focal field phase of a laser beam using spatial light modulators. Interfaced peripheral hardware using LabView.

### 2008 summer RESEARCH STUDENT, UNIVERSITY OF TORONTO.

Adviser: Dr. Patrick Gunning.  
Experience:

Completed a literature survey of the proteomimetic design of Suppressor of Cytokine Signaling-1 inhibitors. Topics included structure-based design, binding modes, bioavailability, and depeptization strategies of medicinal chemistry.

**2007 – 2008 RESEARCH VOLUNTEER, UNIVERSITY OF TORONTO.**

Adviser: Dr. Ulrich Krull.

Experience:

Investigated electrochemical microstructuring, photoluminescence, and covalent modification of porous silicon. Used scanning electron microscopy for surface characterization.

**2006 – 2007 RESEARCH STUDENT, UNIVERSITY OF TORONTO.**

Research Opportunity Program 2006

Adviser: Dr. Ulrich Krull.

Experience:

Investigated photoluminescence of CdSe/ZnS quantum dots with fluorescence spectroscopy including time-resolved measurements.

**EXTRA-CURRICULAR INVOLVEMENT AND TEACHING EXPERIENCE**

- 2010 – present** Research mentor for two undergraduate students.  
University of Illinois at Urbana-Champaign, Department of Chemistry.
- 2010 – 2011** Center for the Physics of Living Cells (CPLC) Teaching Fellow.  
University of Illinois at Urbana-Champaign, CPLC.
- 2009 – 2010** Teaching Assistant for junior and senior level physical chemistry classes.  
University of Illinois at Urbana-Champaign, Department of Chemistry.
- 2008 – 2009** Teaching Assistant for Introductory Physics and Introductory Chemistry.  
University of Toronto, Departments of Chemistry and Physics.
- 2007 – 2008** Facilitated Study Sessions Leader for Chemistry, Physics, Biology, and Mathematics.  
University of Toronto, Robert Gillespie Academic Skills Centre.
- 2006 – 2009** Residence Assistant, Community Assistant.  
University of Toronto, Department of Student Housing & Residence Life.