

Gerasim K. Iliev

D.O.B: May 28, 1980

Citizenship: Canadian

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Education:

University of Toronto – 1999 – 2008

Doctor of Philosophy – Theoretical Physical Chemistry

Ph. D. Conferred November 2008

Thesis: Phase Transitions in Polymeric Systems: A Directed Walk Study

Supervisor: Prof. Stuart G. Whittington

Honours Bachelor of Science – Chemical Physics (Specialist), Mathematics (Major)

Hon. B. Sc. Awarded June 2004 with distinction

Thesis: A Study of Polymer Adsorption via Directed Walks and the Morita approximation

Research:

- | | | | |
|-----------------------------------|--|------------------------|---|
| Assistant Professor (L.T.) | University of Georgia | Aug 2015 – Present | Prof. J. Cantarella |
| | Investigating the effect of a pulling force at the mid-point of a self-avoiding walk | | |
| Research Associate | University of Toronto | Oct 2013 – March 2014 | Prof. S. G. Whittington |
| | Studying the effect of inhomogeneity on polymers interacting with an adsorbing surface | | |
| Postdoctoral Fellow | York University | March 2012 – Aug 2013 | Prof. E. J. Janse van Rensburg
Prof. N. Madras |
| | Studied and modeling inhomogeneous percolation and lattice animals
Modeled the adsorption of prudent walks at an impenetrable surface | | |
| Postdoctoral Fellow | University of Toronto | Sept 2011 – March 2012 | Prof. S. G. Whittington |
| | Studied the behaviour of polymers interacting with an heterogeneous surface subject to a force | | |
| Postdoctoral Fellow | York University | Jan 2011 – Aug 2011 | Prof. E. J. Janse van Rensburg |
| | Studied the phase transitions in polymeric systems via analytic and numerical methods | | |
| Postdoctoral Fellow | University of Melbourne | July 2008 – Dec 2010 | Dr. R. Brak
Prof. A. J. Guttmann |
| | Studied the behaviour of semiflexible polymers close to the adsorption temperature | | |
| Research Student | University of Toronto | Sept 2003 – May 2004 | Prof. S. G. Whittington |
| | Modeled the adsorption of random copolymers subject to an elongational force | | |
| NSERC Summer Research | University of Toronto | May 2003 – Aug 2003 | Prof. S. G. Whittington |
| | Studied and modeled the localization of random copolymers between two immiscible solvents | | |
| Summer Research | University of Toronto | May 2002 – Aug 2002 | Prof. G. D. Scholes |
| | Studied and characterized the optical and physical properties of PbS nanocrystals | | |

Publications:

1. Iliev G K (2015) Localization models of semiflexible polymers. *In preparation*
2. Iliev G K (2015) Inhomogeneous adsorption of patterned copolymers. *In preparation*
3. Beaton N, Chapman H and Iliev G K (2015) Self-avoiding walk models of polymers pulled at their midpoint. *In preparation*
4. Beaton N and Iliev G K (2015) Prudent walk models of adsorbing polymers. *Journal of Statistical Mechanics: Theory and Experiment*. P09014
5. Iliev G K and Whittington S G (2015) Polymers undergoing inhomogeneous adsorption: Order parameters for a partially directed walk model. *Physical Review E*. **92**: 012111
6. Iliev G K, Janse van Rensburg E J and Madras N (2014) Results on inhomogeneous percolation. *Journal of Statistical Physics*. **158**: 255-299
7. Iliev G K and Whittington S G (2013) Pulling alternating copolymers adsorbed on a striped surface. *Physical Review E*. **48**: 052105
8. Iliev G K, Orlandini E and Whittington S G (2013) Models of polymers adsorbing on a striped surface: Pulling at an angle. *Journal of Physics A: Mathematical and Theoretical*. **46**: 055001
9. Iliev G K and Whittington S G (2012) Adsorbed polymers on an inhomogeneous surface: Pulling at an angle. *Journal of Physics A: Mathematical and Theoretical*. **45**: 185003 (**Cover Article**)
10. Iliev G K and Janse van Rensburg E J (2012) Directed path models of adsorbing and pulled copolymers. *Journal of Statistical Mechanics: Theory and Experiment*. P01019
11. Iliev G K and Janse van Rensburg E J (2011) Short and long ranged adsorption of directed paths. *Journal of Statistical Mechanics: Theory and Experiment*. P11013
12. Iliev G K, Orlandini E and Whittington S G (2011) Polymers undergoing inhomogeneous adsorption: Exact results and Monte Carlo simulations. *Journal of Physics A: Mathematical and Theoretical*. **44**: 405004 (**IOPselect/Insight Article**)
13. Brak R, Iliev G K and Prellberg T (2011) An infinite family of adsorption models and restricted Lukasiewicz paths. *Journal of Statistical Physics*. **145**: 669-685
14. Iliev G K, Orlandini E and Whittington S G (2010) Directed walk models of adsorbing semiflexible polymers subject to an elongational force. *Journal of Physics A: Mathematical and Theoretical*. **43**: 315202
15. Brak R, Iliev G K, Owczarek A L and Whittington S G (2010) Exact solution of a three-dimensional lattice polymer confined in a slab with sticky walls. *Journal of Physics A: Mathematical and Theoretical*. **43**: 135001
16. Brak R, Iliev G K, Rechnitzer A and Whittington S G (2007) Motzkin path models of long chain polymers in a slit. *Journal of Physics A: Mathematical and Theoretical*. **40**: 4415-4437
17. Habibzadah N, Iliev G K, Saguia A and Whittington S G (2006) Some Motzkin path models of random and periodic copolymers. *Journal of Physics: Conference Series*. **42**: 111-123
18. Habibzadah N, Iliev G K, Martin R, Saguia A and Whittington S G (2006) The order of the localization transition for random copolymers. *Journal of Physics A: Mathematical and General*. **39**: 5659-5667
19. Iliev G, Rechnitzer A and Whittington S G (2005) Localization of random copolymers and the Morita approximation. *Journal of Physics A: Mathematical and General*. **38**: 1209-1223
20. Iliev G, Orlandini E and Whittington S G (2004) Adsorption and localization of random copolymers subject to a force: The Morita Approximation. *The European Physical Journal B*. **40**: 63-71

Conferences and Presentations (invited talks in bold):

1. Iliev G K (2015) Statistical Mechanics of Polymeric Systems: Overview and Directed Path Models. *University of Georgia Geometry Seminar Group. Athens, Georgia*
2. **Iliev G K (2015) A collection of models for copolymers interacting with an inhomogeneous surface.** *Combinatorics, Topology and Statistical Mechanics of Polymers. Saskatoon, Canada.*
3. **Iliev G K (2014) Adsorbing polymers interacting with an inhomogeneous surface.** *SIAM Conference on Discrete Mathematics. Minneapolis, Minnesota. (Withdrawn – Family Emergency)*
4. **Iliev G K (2014) Polymer adsorption near an inhomogeneous surface subject to a force.** *Combinatorial Applications to Biology, Chemistry and Physics. Saskatoon, Canada. (Withdrawn)*
5. Iliev G K (2014) Copolymers interacting with an inhomogeneous surface. *Chemical Physics Theory Group Seminar Series. University of Toronto, Toronto, Canada.*
6. **Iliev G K (2013) Copolymers interacting with an inhomogeneous surface under an elongational force.** *Random Polymers. EURANDOM, Eindhoven, Netherlands*
7. **Iliev G K (2013) Numerology in directed walk models of polymers.** *Young European Probabilists X. EURANDOM, Eindhoven, Netherlands*
8. **Iliev G K (2012) Striped copolymers interacting with striped surfaces.** *Alexander von Humboldt Colloquium Poster Presentation. Toronto, Canada*
9. **Iliev G K (2012) Homopolymer and copolymer adsorption at an inhomogeneous surface: A partially-directed and self-avoiding walk model.** *Means, Methods and Results in the Statistical Mechanics of Polymeric Systems. University of Toronto, Toronto, Canada*
10. Iliev G K (2012) Copolymers subject to a force: A directed walk model. *American Physical Society March Meeting. Boston, USA*
11. Iliev G K (2010) Copolymer adsorption on a striped surface: A directed walk model. *Australian Mathematical Society. University of Queensland, Brisbane, Australia*
12. Iliev G K (2010) Adsorbing semiflexible polymers subject to a force: A 3D PDW model. *STATPHYS XXIV. Cairns, Australia*
13. **Iliev G K (2010) Polymers in a slab: A three-dimensional partially-directed walk model.** *Statistical Physics of Lattice Polymers. University of Melbourne, Melbourne, Australia*
14. Iliev G K (2009) A partially-directed walk model of polymers in a slit. *Australian Mathematical Society. University of South Australia, Adelaide, Australia*
15. Iliev G K (2009) Modeling semiflexible polymer adsorption. *ISt PRIMA Congress. University of New South Wales, Sydney, Australia*
16. Iliev G K (2008) Adsorption of semiflexible polymers. *Statistical Mechanics Seminar. University of Melbourne, Melbourne, Australia*
17. **Iliev G K (2007) Unzipping duplex DNA: A directed walk model.** *Random Polymers at EURANDOM. Eindhoven University of Technology, Eindhoven, Netherlands*
18. Iliev G K (2007) Bicoloured Motzkin paths: A model for unzipping duplex DNA. *American Physical Society March Meeting. Denver, USA*
19. **Iliev G K (2007) Bicoloured Motzkin paths: A model for unzipping duplex DNA.** *Combinatorial Problems Raised by Statistical Mechanics. CRM, University of Montreal, Montreal, Canada*
20. Iliev G K (2006) Directed walk models of polymers in a slit. *Statistical Mechanics Seminar. Chemical Physics Theory Group (CPTG), University of Toronto, Toronto, Canada*
21. Iliev G K (2006) A Directed walk model of unzipping duplex DNA. *Physical Chemistry Seminar Series. University of Toronto, Toronto, Canada*

22. Iliev G (2005) Bicoloured Motzkin paths: A Duplex DNA Model. *Statistical Mechanics Seminar*. CPTG, University of Toronto, Toronto, Canada
23. Iliev G (2004) Adsorption of homopolymer and random copolymer walks subject to a force: The Morita approximation. *Statistical Mechanics Seminar*. CPTG, University of Toronto, Toronto, Canada
24. Iliev G and Salamaszek O (2003) Adsorption and localization of directed homopolymer and alternating copolymer walk models: The Morita approximation. *NSERC USRA Poster Presentation*. University of Toronto, Toronto, Canada
25. Iliev G (2003) Adsorption of directed homopolymers and random copolymer walk models: The Morita approximation. *Statistical Mechanics Seminar*. CPTG, University of Toronto, Toronto, Canada
26. Iliev G (2003) Adsorption of directed homopolymers and random copolymer walk models: The Morita approximation. *Southwestern Ontario Undergraduate Student Chemistry Conference*. McMaster University, Hamilton, Canada
27. Hines M, Iliev G, Lopata K and Scholes G D. (2002) Characterizing the physical and optical properties of PbS nanocrystals. *NSERC USRA Poster Presentation*. University of Toronto, Toronto, Canada

Teaching Experience:

Lecturer	MATH2250	Calculus I	University of Georgia	Aug 2015 – Dec 2015
Course Coordinator	MATH1013	Applied Calculus I	York University	May 2013 – June 2013
Lecturer	MAST10006	Calculus 2	University of Melbourne	July 2010 – Dec 2010
Lecturer	MAST10006	Calculus 2	University of Melbourne	July 2009 – Dec 2009
Teaching Assistant	CHM225H1	Physical Chemistry	University of Toronto	Sept 2007 – May 2008
Teaching Assistant	MAT135Y1	Calculus	University of Toronto	Sept 2006 – May 2007
Teaching Assistant	CHM139H1	Physical Chemistry	University of Toronto	Sept 2006 – Dec 2006
Teaching Assistant	CHM139H1	Physical Chemistry	University of Toronto	Jan 2006 – May 2006
Teaching Assistant	CHM225H1	Physical Chemistry	University of Toronto	Sept 2005 – Dec 2005
Teaching Assistant	MAT135Y1	Calculus	University of Toronto	Sept 2004 – May 2005
Teaching Assistant	CHM220H1	Physical Chemistry	University of Toronto	Sept 2004 – Dec 2004
Teaching Assistant	MAT135Y1	Calculus	University of Toronto	Sept 2003 – May 2004

Awards:

NSERC Postgraduate Scholarship Doctoral Award (PGS D)	Jan 2008 – Nov 2008
F. E. Beamish Graduate Scholarship in Science and Technology	Sept 2007 – Jan 2008
E. Walter & M. Warren Graduate Scholarship in Science and Technology	Sept 2006 – May 2007
E. Walter & M. Warren Graduate Scholarship in Science and Technology	Sept 2005 – May 2006
University of Toronto Fellowship	Sept 2004 – May 2005
Dr. J. A. & C. P. Dickson Award	Sept 2003 – May 2004
NSERC Undergraduate Student Research Award	May 2003 – Sept 2003

Services and Conference Organization:

Refereed manuscripts for:

Journal of Physics A: Mathematical and Theoretical
Journal of Statistical Physics
Journal of Statistical Mechanics: Theory and Experiment
Mathematical Reviews

Member of the Organizing Committee for:

Means, Methods and Results in the Statistical Mechanics of Polymeric Systems (2012)
University of Toronto, Toronto, Canada

Statistical Physics of Lattice Polymers – STATPHYS XXIV Satellite Meeting (2010)
MASCOS/University of Melbourne, Melbourne, Australia

Lattices and Trajectories: A Symposium of Mathematical Chemistry (2007)
Fields Institute, Toronto, Canada

Volunteered for:

UGA High School Mathematics Tournament (2015)
Melbourne University Open Day (2010)
Graduate Research Recruitment Session (2008)

Workshops and Schools:

Applied Combinatorics Graduate Summer School, PIMS/USASK (2015) Saskatoon, Canada
School on Random Polymers, EURANDOM (2013, Eindhoven, Holland)
Young European Probabilists X, EURANDOM (2013) Eindhoven, Holland
Enumerative Combinatorics and Integrable Models, MFO (2007), Oberwolfach, Germany
Statistical Mechanics and Combinatorics, CRM Montreal (2007) Montreal, Canada
Combinatorial Problems Raised by Statistical Mechanics, CRM Montreal (2007) Montreal, Canada

Skills:

Maple (c. 2002), LaTeX (c. 2004), Linux/Unix (c. 2004), Beamer (c. 2009), C++ (c. 2012), MATLAB (c. 2014)