

CURRICULUM VITAE – ILIA A. SOLOV'YOV, PH.D.

PERSONAL DATA Date and place of birth November 10, 1983; Leningrad (St. Petersburg), USSR (Russia)
Civil status Married to Vita Solovyeva
Children Vladimir Ilya Solovyev (born October 17, 2012)
Valery Ilya Solovyev (born July 30, 2015)

CONTACT INFORMATION Department of Physics, Chemistry and Pharmacy Phone: +45-6550-2532
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Denmark Homepage: www.quantbiolab.com

RESEARCH INTERESTS I have a strong background in **theoretical** and **computational physics**, as well as **bio-physics**. My research interests cover a broad range of questions on theory of biomolecules and smart inorganic materials. Of particular interest are those biological processes that trigger energy conversion into forms that are usable for chemical transformations and are quantum mechanical in nature. Such processes involve chemical reactions, light absorption, formation of excited electronic states, transfer of excitation energy, and transfer of electrons and protons in chemical processes. Equally intriguing are problems in nanophysics which focus on potential applications in nano- technology, material science and medicine. I employ various levels of theory, including classical and quantum molecular dynamics, Monte-Carlo, coarse grained methods and multiscale techniques; often it is crucial to go beyond the standard methodologies, in which case specialized methods and tools are being designed and developed in my group. Many of the simulations require high performance computing facilities, and throughout the years I have gained significant experience working with supercomputers and utilizing them for addressing problems of interest.

EDUCATION

A.F. Ioffe Physical-Technical Institute, Russian Academy of Sciences **2009**
St. Petersburg, Russia
Candidate of Sciences in Theoretical Physics (equivalent to Ph.D.)
Dissertation title: New approaches for the description of nanoscale systems on the example of atomic clusters, carbon nanotubes and fullerene-based nanowires
Advisor: Prof. Dr. Oleg V. Konstantinov

Johann Wolfgang Goethe University, Frankfurt am Main, Germany **2008**
Ph.D. in Physics with Honors (summa cum laude)
Dissertation title: Magnetoreception mechanisms in birds – towards the discovery of the sixth sense
Advisor: Prof. Dr. h. c. mult. Walter Greiner

St. Petersburg State Polytechnical University, St. Petersburg, Russia **2006**
Master of Sciences in Physics with Honors
Thesis title: Structure and properties of metallic and noble gas clusters

Johann Wolfgang Goethe University Frankfurt am Main, Germany **2004**
Diploma in Physics with Honors
Thesis title: Ab initio and model description of atomic clusters

St. Petersburg State Polytechnical University St. Petersburg, Russia **2004**
Bachelor of Sciences in Physics with Honors
Thesis title: Modeling of Lennard-Jones clusters

	Lyceum “Physical-Technical High School” , Russian Academy of Sciences St.Petersburg, Russia	2000
	Elm-Wood School , London, United Kingdom	1995
	Jacob Bruce Gymnasium №192 , St. Petersburg, Russia	1990 – 1998
	Elsa-Brandström School , Frankfurt am Main, Germany	1990 – 1992
WORK EXPERIENCE	University of Southern Denmark Department of Physics, Chemistry and Pharmacy, Faculty of Science, Odense, Denmark <i>Associate Professor</i> <i>Assistant Professor</i>	July 2014 – present October 2013 – June 2014
	Paternity leave <i>24 months total</i>	2015 – 2016 2012 – 2013
	University of Illinois at Urbana-Champaign Beckman Institute for Advanced Science and Technology, Urbana, Illinois, USA <i>Beckman Postdoctoral Fellow</i>	2010 – 2013
	A.F. Ioffe Physical-Technical Institute Russian Academy of Sciences, St. Petersburg, Russia <i>Research Fellow on leave</i>	2010 – present
	Johann-Wolfgang Goethe University Frankfurt Institute for Advanced Studies, Frankfurt am Main, Germany <i>Postdoctoral Research Fellow</i>	2008 – 2010
	University of Illinois at Urbana-Champaign Beckman Institute for Advanced Science and Technology, Urbana, Illinois, USA <i>Visiting scholar</i> , one-month visits	2006, 2008 – 2010
	Johann-Wolfgang Goethe University Frankfurt International Graduate School for Science at the Frankfurt Institute for Advanced Studies, Frankfurt am Main, Germany <i>Graduate Researcher</i>	2005 – 2008
	Danish council for independent research Research grant, Denmark. (DKK 2,592,000)	2018
	Danish council for independent research Research grant, Denmark Co-applicant. PI: Jakob Kongsted. (DKK 7,813,002)	2017
	Danish e-Infrastructure Cooperation (DeIC) High performance computing grant (node/hrs 462,810 eqv. DKK 976,839)	2017
Danish Ministry of Education Travel grant for a supervised student, Denmark student: Emil Sjulstok Rasmussen (DKK 200,000)	2017	
Danish e-Infrastructure Cooperation (DeIC) High performance computing grant (node/hrs 410,778 eqv. DKK 890,430)	2016	
SDU e-Science Centre	2015	
GRANTS, HONORS AND AWARDS		

- Ph.D. scholarship grant (1/3), Odense, Denmark
Co-applicant. PI: Himanshu Khandelia. (DKK 500,000)
- Danish e-Infrastructure Cooperation (DeIC)** **2015**
High performance computing grant (node/hrs 284,812 eqv. DKK 627,393)
- The Alfred Benzon Foundation** **2015**
Workshop organization grant, Copenhagen, Denmark. (DKK 49,420)
- Lundbeck Foundation Young Investigator Grant** **2014**
5 year individual research fellowship, Copenhagen, Denmark. (DKK 10,000,000)
- The Extreme Science and Engineering Discovery Environment (XSEDE)** **2014**
Supercomputer time allocation grant, USA
Co-applicant. PI: David LeBard. (\$ 114,485)
- Danish e-Infrastructure Cooperation (DeIC)** **2013**
High performance computing grant
Co-applicant. PI: Hans Jørgen Aagaard Jensen. (DKK 792,000)
- Beckman conference challenge proposal** **2013**
Symposium organization grant
Co-applicant with Baoxing Xu. (\$ 10,000)
- Arnold and Mabel Beckman Foundation** **2010 – 2013**
Beckman institute postdoctoral fellowship, Urbana, USA. (\$ 156,000)
- Stiftung Polytechnische Gesellschaft** **2008 – 2010**
The foundation “Stiftung Polytechnische Gesellschaft”
Research fellowship, Frankfurt am Main, Germany. (€102,000)
- Frankfurter Förderverein für physikalische Grundlagenforschung** **2008**
Frankfurt foundation for fundamental physical sciences
One of a kind award for interdisciplinary research on magnetoreception in birds and other animals, Frankfurt am Main, Germany. (€10,000)
- Philipp Siedler-Wissenschaftspreis** **2006**
Philipp Siedler science award
The best Diploma thesis award, Frankfurt am Main, Germany. (€1,000)
- Studienstiftung des deutschen Volkes** **2003 – 2004**
Scholarship of the German nation
Educational foundation, fellowship, Germany
- Soros foundation (ISSEP) award** **2003, 2004**
Laureate of the *Student of the Year* contest, St. Petersburg, Russia

TEACHING
EXPERIENCE
(COURSES)

- University of Southern Denmark**
Department of Physics, Chemistry and Pharmacy, Faculty of Science, Odense, Denmark
Lecturer: Computational Physics, ~20 students, (5 ECTS). **2017 – 2018**
Lecturer: Introductory Quantum Mechanics, ~25 students, (10 ECTS). **2015 – 2018**
Lecturer: Molecular Spectroscopy, ~30 students, (5 ECTS). **2014 – 2015**

MBN Research Center
Crowne Plaza, Edinburgh, United Kingdom

Co-organizer and tutor: Training course on computational methods for complex molecular systems **May 17 – 19, 2014**

Goethe University

Frankfurt Institute for Advanced Studies, Frankfurt am Main, Germany

Visiting Lecturer: Multi-center molecular systems, course for graduate and post-graduate researchers **2011**

Tutorial development: Computational methods in Meso-Bio-Nano Science **2004 – 2010**

Johann-Wolfgang Goethe University

Institute for Theoretical Physics, Frankfurt am Main, Germany

Teaching Assistant: theoretical physics courses in statistical mechanics, thermodynamics, and basics of quantum mechanics. **2003 – 2004**

SUPERVISION

With ongoing, **7** Bachelor students; **6** Masters students; **6** Ph.D. students; **2** Postdoctoral research associate; **3** Software developers;

SUMMARY OF PUBLICATIONS

101 peer reviewed scientific publications since 2002 including 73 journal publications, 12 book chapters, 6 refereed conference proceedings, 5 theses, 5 monographs/books; designed and contributed to **15** journal and book covers.

h-index of **24** with +2000 citations.

URL: <http://scholar.google.com/citations?user=dKpz7QkAAAAJ&hl=en>

PROFESSIONAL SERVICE

Management Experience

University of Southern Denmark, Department of Physics, Chemistry and Pharmacy

Faculty of Science, eScience committee member **2018 – present**

Member of the departmental council **2016 – present**

Conference and Symposia Organization

Fifth International Conference “Dynamics of Systems on the Nanoscale” (DySoN 2018)

Potsdam, Germany, October 8 – 12, 2016

Symposium co-chair **2018**

Oxford-Oldenburg-Odense (O3) annual symposium on magnetoreception

Middelfart, Denmark, March 15 – 17, 2018

Middelfart, Denmark, September 08 – 10, 2016

Odense, Denmark, June 17 – 18, 2015

Symposium chair **2015 – 2018**

“Hands-on” Workshop on Computational Biophysics

Odense, Denmark, October 12 – 16, 2015

Co-organizer **2015**

Symposium: “The Radical-Pair Mechanism as Magnetoreceptor Mechanism” at the 16th International Congress on Photobiology

Córdoba, Argentina, September 09, 2014

Symposium co-chair **2014**

Interdisciplinary Symposium on Advanced Nano/Biosystems: Design, Fabrication, and Characterization

Urbana, Illinois, USA, September 25 – 27, 2013

Symposium co-chair **2013**

International Conference “Dynamics of Systems on the Nanoscale” (DySoN 2010)

National Research Council, Rome, Italy, November 16 – 19, 2010
Member of the local organizing committee **2010**

International Symposium on atomic cluster collisions: structure and dynamics from the nuclear to the biological scale (ISACC)
 Ann Arbor, Michigan, USA, July 14 – 18, 2009
 St. Petersburg, Russia, June 3 – 7, 2008, Europhysics Conference
 GSI, Darmstadt, Germany, July 19 – 23 2007, Europhysics Conference
Member of the local organizing committee **2007 – 2009**

Professional Affiliations

Theoretical Section of the Danish Chemical Society
Member **2017 – present**

American Chemical Society
Member **2017**

MBN Research gGmbH (www.mbnresearch.com)
share holder and co-founder **2016 – present**

SDU eScience Centre (escience.dias.sdu.dk)
Affiliated member **2014 – present**
Faculty of Science, eScience committee member **2018 – present**

Physicalisches Verein, Frankfurt am Main, Germany
Member **2006 – 2010**

SUMMARY OF PRESENTATIONS **105** presentations since 2003 including 62 invited presentations total (conferences, symposia, colloquia), 28 invited conference and symposia presentations, 29 invited lectures and colloquium presentations, 5 invited general audience presentations.

RECENT REPRESENTATIVE INVITED TALKS (LAST 4 YEARS) *Studying cryptochromes with the computational microscope*
 Colloquium at the Southwestern Medical Center
 Dallas, Texas, USA **May 21, 2018**

Magnetic Compass Sense of Migratory Birds: A Perspective
 Klaus Schulten Memorial Symposium
 Urbana, Illinois, USA **November 09, 2017**

Introducing VIKING – the next generation virtual laboratory
 Colloquium at the Department of Physics of University of Trento
 Trento, Italy **April 26, 2017**

Computational and theoretical insights into vibrationally assisted electron transfer mechanism of olfaction
 Molecular Recognition and the Chemical Senses
 Telluride, Colorado, USA **July 19, 2016**

Quantum biology of the avian magnetic compass
 Departmental Colloquium, University of Liverpool
 Liverpool, United Kingdom **January 27, 2016**

Theoretical insights into cryptochrome magnetoreception
 16th International Congress on Photobiology
 Córdoba, Argentina **September 09, 2014**

PEER-REVIEW
ACTIVITIES**Referee for 29 international journals**

Applied Spectroscopy, Bioelectromagnetics, Biological Reviews, Biology Bulletin Reviews, Biophysical Journal, Biosensors, Carbon, European Biophysics Journal, European Physical Journal D, Integrative Biology, Journal of Biophysics, Journal of Chemical Physics, Journal of Chemical Theory and Computation, Journal of Computational Chemistry, Journal of Nanotechnology, Journal of Physical Chemistry, Journal of Physical Chemistry Letters, Journal of the American Chemical Society, Journal of Theoretical Biology, Journal of the Royal Society Interface, Nature Chemistry, Nature Materials, Nature Scientific Reports, Naturwissenschaften, Philosophical Transactions A, Physical Review E, Physical Review Letters, PLoS One, Proceedings of the National Academy of Sciences of the United States of America

Editorial activities

Scientific Reports (Nature Publishing Group)

Academic Editor:

2017 – present

Plos One (Public Library of Science)

Academic Editor:

2014 – present

Journal of Nanotechnology (Hindawi Publishing Corporation), special Issue on “Fullerene-related nanocarbons and their applications”

Guest Editor:

2011

MAJOR
COLLABORATIONS

Kira Astakhova	Technical University of Denmark (DTU), Lyngby, Denmark
Marcus Elstner	Karlsruhe Institute of Technology, Germany
David Estrada	Boise State University, Idaho, USA
Peter Hore	Oxford University, UK
Ron Hui	Hong Kong University, China
Daniel Kattnig	Exeter University, UK
Himanshu Khandelia	University of Southern Denmark (SDU), Odense, Denmark
Karl-Wilhelm Koch	Oldenburg University, Germany
Jacob Kongsted	University of Southern Denmark (SDU), Odense, Denmark
Wing-Yee Lui	Hong Kong University, China
Henrik Mouritsen	Oldenburg University, Germany
Andrey Solov'yov	MBN Research Centre, Germany
Joseph Takahashi	Texas University, USA

LANGUAGES

Russian (native), English (professional), German (C1), and Danish (B2)