

# KAY HAMACHER'S CURRICULUM VITAE

<b>Address</b>	hamacher@bio.tu-darmstadt.de, <a href="http://www.kay-hamacher.de">http://www.kay-hamacher.de</a>
<b>Education</b>	<p>2002 - 2004 Studies "Economics for scientists and engineers", Fernuniversität Hagen, Germany to gain insights into mathematical finance</p> <p>1999 - 2001 PhD in theoretical physics at "Theoretische Physik I", Dortmund University, grade: 0.7 ("mit Auszeichnung", summa cum laude) Title of Thesis: "Quantum mechanical correlation effects" by means of the Density-Matrix-Renormalization-Group additional fields studied: economic-related lectures on game theory, information management, law</p> <p>1998 - 1999 Study of theoretical physics at University of California, San Diego, USA, GPA: 4.0 Main focus: statistical mechanics &amp; biophysics</p> <p>1994 - 1998 Study of Physics, Dortmund University, Germany Degree: Diplom-Physiker Grade: 1.0 ("mit Auszeichnung") minor subject: mathematics (differential geometry) Title Thesis: "Optimization of high-dimensional functions with respect to protein-structure-prediction"</p> <p>1984 - 1993 High-School (Städt. Gymnasium Gevelsberg) degree: Abitur. Grade: 1.2 (US-equivalent: A)</p>
<b>Employment</b>	<p>2012 - W2-Professor "Computational Biology &amp; Simulation", Dept. of Biology, TU Darmstadt, Germany</p> <p>since 2011 Professor (cooptation), Dept. of Computer Science, TU Darmstadt</p> <p>since 2011 Professor (cooptation), Dept. of Physics, TU Darmstadt</p> <p>2010 positive evaluation of junior-professorship</p> <p>2007 - 2012 Group leader &amp; Juniorprofessor, TU Darmstadt, Germany. Statistical and computational models for molecular biophysics, simulation methods, and information theoretic foundations (tenure track)</p> <p>2006 - 2007 Distinguished PKS Fellow, Max-Planck-Institut für die Physik komplexer Systeme, Dresden, Germany. Independent research in theoretical molecular biophysics</p> <p>2004 - 2006 Liebig-Fellow, Center for theoretical biological physics and Dept. of Chemistry &amp; Biochemistry, UC San Diego, USA. Focus: biophysical &amp; mathematical modelling, molecular biophysics and statistical mechanics</p> <p>2002 - 2004 Assistant for business development with the RWE Systems AG, Dortmund, Germany. Main focus: mathematical finance, project management, and process optimization</p>

	2001 - 2002	PostDoc in the Bionanotechnology-Group at the Institute for Nanotechnology, Research-Center Karlsruhe, Germany. Further development of my parallelized DMRG-software
	1999	Research assistant at "Theoretische Physik II", Dortmund University. Research on transition metal compounds with computer simulations; teaching duties in mathematics
	1998 - 1999	UC San Diego, USA, Research Assistant & Fellow. Research on statistical mechanics of RNA-molecules and phase transitions by means of mathematical models and simulations. Teaching duties in physics (intro. level)
	1998 - 1998	Research assistant at the chair "Theoretische Physik I", Dortmund University, Germany. Research on global optimization, stochastic programming, algorithms, protein folding and teaching duties in mathematics
	1991 - 1995	Teacher for computer science for the city of Gevelsberg, topics: Pascal, robotics, C
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<b>Fellowships</b>	2004 - 2006	Liebig-Fellowship of the "Fonds der chemischen Industrie" for research at UC San Diego
	1999 - 2001	PhD-stipend of the "Fonds der chemischen Industrie" (Foundation of the chemical industry)
	1999 - 2001	PhD-stipend from the "Studienstiftung des deutschen Volkes"
	1998 - 1999	Research Fellowship, UC San Diego, USA
	1998	Graduate Study Stipend, Dept. of Physics, Cornell University, USA ( <i>offered</i> )
	1994 - 1998	Stipend from "Studienstiftung des deutschen Volkes" (German National Academic Foundation)
<b>Honors</b>	2011	Outstanding Research Award, TU Darmstadt
	2009 - 2012	Nominated Fellow, Forum Interdisciplinary Research, TU Darmstadt, Germany
	2005 - 2009	Elected Member, Center for interdisciplinary research, Bielefeld University, Germany
	2003	Award for the best PhD-thesis, Dortmund University
	1998	Award for the best thesis, Dortmund University
	1994	Second prize in the state-wide contest "Jugend forscht" for the construction of a parallel computer
	1993	Book-prize of the chemical industry for the best high-school-degree
<b>Memberships</b>		German Physical Society (DPG) Biophysical Society Int. Society for Computational Biology Gesellschaft für Informatik Bunsen-Society for physical chemistry, focus group theo. chemistry
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<b>Languages</b>		German - native speaker English - business fluent Latin
<b>IT-Knowledge</b>		C++, Fortran, R, Python, MPI, Haskell, SQL, CUDA

## OFFERED POSITIONS & LIST POSITIONS

- 2014 offer of a W2-Professorship for High-Performance-Computing/Big Data + Directorship of the Paderborn Center for Parallel Computing (PC<sup>2</sup>), University of Paderborn, *offer turned down*
- 2012 offer of a W2-Professorship for Computational Biology & Simulation, TU Darmstadt, *accepted*, start: April, 1st 2012
- 2011 Professor for Computational Biophysics, Dept. of Physics, NTNU, Trondheim, Norway. *1<sup>st</sup> position, position offered, offer turned down*
- 2010 Professor for Bioinformatics, Dept. of Computer Science, NTNU, Trondheim, Norway. *short-listed, list of 3*
- 2009 tenure-track option, Dept. of Biology, TU Darmstadt, Germany. *accepted*
- 2009 Faculty position for High-Performance Computing, CU New York, USA. *offer turned down*
- 2007 Junior-Professor for Bioinformatics & Theoretical Biology, Technische Universität Darmstadt, Germany. *1<sup>st</sup> position, offer accepted*
- 2007 Group-Leader in Computational Engineering, Aachen Institute for Advanced Studies in Computational Engineering Science of the Excellence Initiative Germany, RWTH Aachen, Germany. *offer turned down*
- 2004 Junior-Professor for computational physics & condensed matter physics, Universität Frankfurt a.M., Germany. *1<sup>st</sup> position, turned down due to Liebig-Fellowship*

## INVITED RESEARCH STAYS

Date	Institution	Host	Topic
15.01.-19.01.2013	Fritz-Haber-Institute of the Max-Planck-Society	Prof. A. Mikhailov	simulation & coarse-graining in physical chemistry
18.09.-28.09.2009	Dept. of Mathematics, Groningen University, NL	Prof. M. E. Dür	optimization in computational biology
22.08.-05.09.2008	Technical University Dortmund, Germany	Prof. W. Weber	theoretical physics and complexity
8.05.-12.05.2005	Interdisciplinary Center for Mathematical and Computational Modeling, University of Warsaw, Poland	Prof. J. Trylska	assembly of the ribosome

## ORGANIZATION OF WORKSHOPS

Year	Topic	Venue/Place
2013	Dagstuhl-Workshop " <i>Genomic Privacy</i> "	Schloß Dagstuhl, Oct. 2013
2012	Workshop " <i>Bitcoin</i> ", INFORMATIK2012	42. Annual Meeting of the Gesellschaft für Informatik e.V., Braunschweig, Germany
2011	Symposium " <i>Securing medical and social data</i> "	TU Darmstadt, together with the "Darmstädter Juristischen Gesellschaft"
2010	Symposium " <i>Securing medical and genomics data</i> "	TU Darmstadt, together with the "Darmstädter Juristischen Gesellschaft"
2009	" <i>Function and Failure of Adaptive Biological Networks</i> "	Center for interdisciplinary research, Bielefeld University
2009	" <i>Massively-Parallel Computational Biology on GPUs</i> ", INFORMATIK2009	39. Annual Meeting of the Gesellschaft für Informatik e.V., Lübeck, Germany

## EDITORIAL ACTIVITIES

- Editor-in-Chief of 'Frontiers in Computational Physics', 2013-
- Member of Editorial Board of 'PLOS One', 2013-
- Co-Editor of Book "Datenschutz als multidisziplinäre Aufgabe", Springer, June 2013

## REVIEWING & REFEREEING ...

- ... for Funding Agencies
  - Deutsche Forschungsgemeinschaft (DFG), Computational Biology and Bioinformatics
  - Agence Nationale de la Recherche (ANR), France, Biophysics
  - CECAM (Centre Européen de Calcul Atomique et Moléculaire), Paris
  - National Research Agency (UEFISCDI), Romania, Computational Biophysics
  - Health Research Board (Ireland) for Biophysics, Simulation, and Virology
  - Strategic University Research, Hong Kong
- ... for Journals
  - Algorithms
  - Artificial Intelligence in Medicine
  - Bioinformatics
  - Biological Research
  - Biosystems
  - Chaos (AIP)
  - Computer Methods and Programs in Biomedicine
  - Concurrency and Computation: Practice and Experience
  - Gene
  - IEEE Signal Processing Letters
  - IEEE Transactions on Evolutionary Computing
  - Journal of Chemical Physics
  - Journal of Chemical Theory and Computation (ACS)
  - Journal of Computational Physics
  - Journal of Computational Chemistry
  - Journal of Global Optimization
  - Physical Chemistry Chemical Physics
  - Plant Biology
  - Plant Physiology
  - PLoS One
  - PLoS Computational Biology
  - Proteins
  - Scientific Reports (Nature)
  - SIAM Journal on Control and Optimization
- ... for Conferences
  - PETS Workshop on Genome Privacy (GenoPri), 2014
  - BITCOIN'14, workshop during Financial Cryptography and Data Security 2014
  - Int. Conference on Computer Communication Networks (ICCCN 2012)
  - 11th IEEE Int. Conf. on Bioinformatics and Bioengineering (BIBE2011)

## ADMINISTRATIVE SERVICE

since 2012	Senate delegate for appointment committees
2011	Member of the faculty search committee “Bio-inspired communication technologies”
2011-2013	elected member in the faculty committee (Fachbereichsrat)
since 2009	representative of TU Darmstadt for High-Performance-Computing (HPC) in the state Hessen
2009-2011	elected member in the faculty committee (Fachbereichsrat)
2009	Responsible for Outreach and PR, Dept. of Biology, TU Darmstadt
since 2008	Member of the committee for students affairs, Dept. of Biology, TU Darmstadt
since 2008	Member of the committee for PhD studies, Dept. of Biology, TU Darmstadt
since 2007	Member of 11 faculty appointments committees at TU Darmstadt