CURRICULUM VITAE

Personal Details

Name: Illia Horenko

Born: August, 1977 in Kiev, Ukraine

Family status: married, two children

Office Adress: Institute of Computational Science
Università della Svizzera italiana
Via Guiseppe Buffi 13
6904 Lugano, Switzerland

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Education & Academic Degrees

2004	**Dr. rer. nat in Mathematics** from the Department of Mathematics and Computer Science, Freie Universität Berlin, Germany (supervised by Prof. Dr. Christoph Schütte)
1999	**M. Sc. in Applied Mathematics** from the Department of Computer Science, Taras Shevchenko National University of Kyiv, Ukraine
1998	**B. Sc. in Applied Mathematics** from the Department of Computer Science, Taras Shevchenko National University of Kyiv, Ukraine
1998	**B. Sc. in Chemical Physics** from the Department of Chemistry, Taras Shevchenko National University of Kyiv, Ukraine

Academic Career

since 2016	**Full Professor** at the Faculty of Informatics and the Institute of Computational Science initiated, Università della Svizzera Italiana, Switzerland
2010-2016	**Associate Professor** at the Faculty of Informatics and the Institute of Computational Science, Università della Svizzera Italiana, Switzerland
2008-2010	**Assistant Professor** (W1 Juniorprofessor) at the Institute of Mathematics, Freie Universität Berlin
2004-2008	**Post-doctoral Research Fellow** at the Institute of Mathematics, Freie Universität Berlin (with Prof. Ch. Schütte)

2001-2004 **Research Assistant** at the Institute of Mathematics, Freie Universität Berlin, research group of Prof. Ch. Schütte

1999 - 2001 **Research Assistant** at the Konrad-Zuse-Zentrum for information technology and supercomputing in Berlin (ZIB), Germany, research group of Prof. P. Deuflhard

Distinctions and Fellowships (Since joining USI in 2010)

since 2014 **DFG Mercator Professor-Fellowship** at the Institute of Mathematics, Freie Universität Berlin. Involved with 16% of working time in the DFG Collaborative Research Center (CRC) *Scaling Cascades in Complex Systems*. The official letter from DFG CRC was stating: "Over the past several years, Prof. Horenko has developed non-parametric, non-stationary, non-homogeneous data analysis techniques which, in our view, belong to the most advanced methodologies in this field." (`http://www.sfb1114.de/research/mercator-fellow`)

2013 **Offer of an IPAM Fellowship** at the UCLA, California, Program *Materials for a Sustainable Energy Future*

2010 **IPAM Fellowship** at the UCLA California, Program *Model and Data Hierarchies for Simulating and Understanding Climate*

Acquired competitive funding since joining USI in 2010 (**1'711'906 EUR in five years)**

2015-2018 DFG - CRC 1114
Scaling Cascades in Complex Systems
Project Website: `http://www.sfb1114.de/research/mercator-fellow`
Obtained funding: Mercator Professor-Fellowship of the DFG (60'000 EUR). Besides of this funding from DFG, I. Horenko was provided with a funding for one postdoc position for two years (**112'000 EUR**) from the FU Berlin.

2015-2018 SNF/DFG - Project FOR 1898
MS-GWaves: *Multi-Scale Dynamics of Gravity Waves*
Project Website: `https://ms-gwaves.iau.uni-frankfurt.de/index.php/de/`
Obtained funding: 289'650 CHF (270'700 EUR)

2015- 2016 PASC (Platform for Advanced Scientific Computing)
Mathematical modeling of credit and equity
Project Website: `http://www.pasc-ch.org/projects/projects/multiscale-economical-data`
Obtained funding: 319'696 CHF (300'000 EUR)

2014-2016 SNF - Project 152979
AnaGraM: *Adaptive numerical methods for time series analysis of time-dependent dynamical Graphs in the presence of Missing data*
Project Website: `http://p3.snf.ch/Project-152979`
Obtained funding: 120'960 CHF (113'000 EUR)

2012- 2015 SNF - Project HPC-Risk: *Towards the HPC-inference of causality networks from multiscale data*
Project Website: `http://www.pasc-ch.org/projects/projects/multiscale-economical-data`
Obtained funding: 221'650 CHF (207'000 EUR)

2010-2015 DFG Schwerpunktprogramm 1276 - Metstroem
Discrete-continuous hybrid models based on integral conservation laws
Project Website: `http://metstroem.mi.fu-berlin.de/?page_id=11`
Obtained funding: 540'000 CHF (505'000 EUR)

2010-2013 SNF - Project 131845
AnaGraph: *Adaptive numerical methods for nonstationary time series analysis of time-dependent graphs in context of dynamical systems*
Project Website: `http://p3.snf.ch/Project-131845`
Obtained funding: 155'744 CHF (145'000 EUR)

Research group

Post doc **Dr. Lukas Pospisil** is working on implementation and adaptation of the methods developed in the group for the High-Performance Computing platforms of the Swiss Supercomputing Center in Lugano (CSCS) and their application to problems from economics, funded from the PASC-project *Multi-Scale Economical Data*.

Post doc **Dr. Olga Kaiser** is working on mathematical methods for non-stationary analysis and data-based prediction of rare events, funded from SNF-Project *Multi-Scale Dynamics of Gravity Waves*.

PhD **Dipl.-Inf. Dimitri Igdalov** is working on data-based identification of temporal changes in very large graphs, missing data problems and HPC implementation of time series analysis methods library developed in the group, currently funded by USI Lugano.

PhD	**M.Sc. Anna Marchenko** is working on mathematical modeling of equity risks and non-parametric time series analysis methods based on maximum entropy principles, funded from the SNF-project HPC-Risk.

Supervision Activities - since joining USI as an associate professor in 2010

Philip Metzner	**Postdoc** between 2011 and 2014. - Philip was working on inverse problems in fluid mechanics and their HPC-implementation, funded from the German DFG research initiative MetStroem.
Katia Fiorucci	**PhD student** between 2012 and 2014. - Katia was working on mathematical modeling of credit and equity risk beyond homogeneity and stationarity assumptions: statistical factor models and high-performance data mining.
Thomas von Larcher	**Postdoctoral Research Fellow** whom I am co-supervising since 2011. He works predominantly at the Freie Universität Berlin in the Geophysical Fluid Dynamics group of Prof. Rupert Klein on the project „Discrete-continous hybrid models on the basis of the integral conservation laws“, a joint work by FU Berlin (R. Klein, M. Waidmann, T. von Larcher), USI Lugano (I. Horenko, P. Metzner, D. Igdalov), University of Stuttgart (A. Beck, C.-D. Munz), and University of Cologne (G. Gassner).
Olga Kaiser	**PhD student** between 2010 and 2015. Thesis title: *Data-based analysis of extreme events: inference, numerics and applications.*
Lars Putzig	**PhD student** between 2010 and 2014. Thesis title: *Non-stationary data-driven computational portfolio theory and algorithms.*
Jana de Wiljes	**PhD student** between 2011 and 2014 (Freie Universität Berlin, Department of Mathematics). Thesis title: *Data-driven discrete spatio-temporal models: problems, methods and an arctic sea ice application.* Main advisor: I. Horenko (co-advisor: R. Klein). For her thesis Jana was awarded with a **Tiburtius-Promotionspreis von Berliner Hochschulen in year 2015 (first price, 4'000 EUR).**
Christian Blume	**PhD student** between 2009 and 2012 at Freie Universität Berlin. Thesis title: *Statistical learning to model stratospheric variability.* Co-advisor: I. Horenko (main advisor: Prof. Dr. Katja Matthes).
Luca Vignola	**Master student**. Defended his Master thesis in 2013. Thesis title: *Unsupervised topological mining of EEG Motor Movement/Imagery Database beyond usual assumptions.*

Christine Kaiser	Visiting **Bachelor student** from Freie Universität Berlin, Department of Mathematics. Did her semester abroad in my research group at USI in summer 2010.
Lawrence Farinola	**Master student**. Defended his Master thesis in 2014. Thesis title: *Investigating the Biomechanics of the human lumbar spine using finite element methods.*
Alena Kopanicakova	**Master student**. Defended her Master thesis in in 2015. Thesis title: *Investigating Optimization Strategies for Quadratic Programming Components of a Data Analysis Framework.*
Jana de Wiljes	**Diploma student**. Defended her Diploma thesis in 2010 at Freie Universität Berlin, Department of Mathematics. Thesis title: *Adopting a Bayesian framework to multidimensional cluster modeling.*

Most Recent Invited and Keynote Presentations (2011-2015)

2017	Invited speaker at the International Symposium „Machine Learning Challenges in Complex Multiscale Physical Systems“, TU Munich, Germany
2016	Speaker at the Oberwolfach Seminar „Different Mathematical Perspectives on Description of Unresolved Scales in Multiscale Systems“
2016	Speaker at the Oberwolfach Workshop „Multiscale Interactions in Geophysical Fluids“ , Oberwolfach Institute, (Germany)
2016	Speaker at the Oberwolfach Workshop „Mathematical and Algorithmic Aspects of Data Assimilation in the Geosciences“ , Oberwolfach Institute, (Germany)
2015	Invited speaker at the „DMV 2015“ ,Hamburg (Germany)
2015	Invited speaker at the Workshop „Causality in Turbulence“ at ETHZ (organizer P. Koumoutsakos), Zürich (Switzerland)
2015	Invited speaker at the „MATHICSE Seminar“ at EPFL (organizer A. Abdulle), Lausanne (Switzerland)
2015	Invited speaker at the „SFB1114 Seminar“ at the FU Berlin (organizer R. Klein), Berlin (Germany)
2014	Invited speaker at the DBTA Workshop „Big Data: Stream Processing“, Bern (Switzerland)

2014 Invited speaker at the CECAM conference „Long time dynamics from short time simulations“ (organizer M. Parinello), Lugano (Switzerland)

2014 Invited lecture at the „CAOS Colloquium“ of the Courant Institute of Mathematical sciences, (three seminars, organizer A. Majda), New York University (USA)

2013 Keynote speaker at the 2013 NDNS+ Workshop „Stochastic Modeling of Multiscale Systems“ (organizer J. Frank), Eindhoven (Netherlands)

2013 Invited speaker at the „Seminar of the Informatics Faculty“ at the Konstanz University (invited by D. Saupe) , Konstanz (Germany)

2012 Invited speaker at the 2012 Oberwolfach Workshop „Mathematical and Algorithmic Aspects of Atmosphere-Ocean Data Assimilation“ (organizers A. Griewank, S. Reich, I. Roulstone, A. Stuart), Oberwolfach (Germany)

2012 Key-note presentation at the Swiss HPC Service Provider Community meeting „Handling huge amount of data for HPC“, CSCS, Lugano (Switzerland)

2012 Key-note lecturer (3 lectures) at the summer school of DFG SPP MetStroem in Berlin „Methods of Data Analysis for Fluid Mechanics, Meteorology and Climate Research“, Berlin (Germany)

2012 Invited speaker at the „Seminar of Oeschger Center“ at the Bern University, (invited by O. Romppainen-Martius), Bern (Switzerland)

2012 Invited speaker at the CECAM conference „Machine Learning in Atomistic Simulations“ (organizer M. Parinello), Lugano (Switzerland)

2011 Invited speaker at the seminar of the Meteorology Department of the Ludwig Maximilian University, (invited by G. Craig), Munich (Germany)

2011 Speaker at the „International Conference on Advances in Computational Science“, (invited by R. Krause and M. Parinello), Lugano (Switzerland)

2011 Invited speaker at the „Seminar of the Meteorology Department“ at Freie Universität Berlin (invited by K. Matthes), (Germany)

2011 Invited lecturer (2 lectures) at the „International Workshop on Statistical Inverse Modeling of Complex Nonlinear Systems“, (organizer A. Majda, Courant, NYU), Fudan University, Shanghai (China)

Organized workshops and conferences (since joining USI in 2010)

2016 **Oberwolfach Seminar** *Different mathematical perspectives on description of unresolved scales in multiscale systems* (together with R. Klein, C. Hartmann and T. O'Kane), Oberwolfach (Germany)

2012 **DFG Summer School** *Methods of Data Analysis for Fluid Mechanics, Meteorology and Climate Research*, (co-organizer with Sebastian Reich), Berlin (Germany)

2012 **Workshop** *Non-stationary Methods of Data Analysis and Applications*, Lugano (Switzerland)

2011 **Conference** *Advances in Computational Science*,(co-organizer with Rolf Krause and Michele Parinello), Lugano (Switzerland)

2011 **Swiss Numerics Colloquium** (co-organizer with Rolf Krause), Lugano (Switzerland)

2010 **Workshop** *Data Hierarchies for Climate Modeling* at the Institute of Pure and Applied Mathematics (IPAM) in Los Angeles (co-organizer together with Amy Braverman, Luis Kornblueh and Robert Pincus, Los Angeles (USA)

List of publications

Publications with me being either the main author or the corresponding author are highlighted with my name written in **bold** letters.

Submitted Journal Articles (currently under review)

[1] S. Gerber and **I. Horenko**. Towards causality-preserving identification of collective variables in discrete state systems. *under review in Proceedings of the National Academy of Sciences **PNAS***, 2016.

[2] S. Gerber, David Fournier, and **I. Horenko**. A new linkage probability measure reveals structural effects in snp relations. *under review in Genome Research*, 2016.

[3] O. Kaiser and **I. Horenko**. Data-driven spatio-temporal modeling of threshold excesses with unresolved covariates. *under review in Water Resources Research*, 2015.

Published peer-reviewed Journal Articles

[4] Thomas von Larcher, Andrea Beck, Rupert Klein, Illia Horenko, Philipp Metzner, Matthias Waidmann, Dimitri Igdalov, Gregor Gassner, and Claus-Dieter Munz. Towards a framework for the stochastic modelling of subgrid scale fluxes for large eddy simulation. *Meteorologische Zeitschrift*, 24(3):313–342, 07 2015.

[5] J. Risbey, T. O'Kane, D. Monselesan, C. Franzke, and **I. Horenko**. Metastability of Northern Hemisphere teleconnection modes. *J. Atmos. Sci.*, 72:35–54, 2015.

[6] Terence. O'Kane, James Risbey, Didier. Monselesan, Illia Horenko, and Christian Franzke. On the dynamics of persistent states and their secular trends in the waveguides of the southern hemisphere troposphere. *Climate Dynamics*, pages 1–31, 2015.

[7] O. Kaiser, D. Igdalov, and **I. Horenko**. Statistical regression analysis of threshold excesses with systematically missing covariates. *Multiscale Modeling & Simulation*, 13(2):594–613, 2015.

[8] S. Gerber and **Horenko, I.** Improving clustering by imposing network information. *Science Advances*, 1(7), 2015.

[9] C. L. E. Franzke, T. J. O'Kane, D. P. Monselesan, J. S. Risbey, and **Horenko, I.** Systematic attribution of observed southern hemispheric circulation trends to external forcing and internal variability. *Nonlinear Processes in Geophysics Discussions*, 2(2):675–707, 2015.

[10] O. Kaiser and **I. Horenko**. On inference of statistical regression models for extreme events based on incomplete observation data. *Communications in Applied Mathematics and Computational Science*, 2014.

[11] S. Gerber and **I. Horenko**. On inference of causality for discrete state models in a multiscale context -. *Proceedings of the National Academy of Sciences of the USA (PNAS)* ***-as a direct submission -***, 111(41):14651–14656, 2014.

[12] J. de Wiljes, L. Putzig, and **I. Horenko**. Discrete non-homogenous and non-stationary logistic and Markov regression models for spatio-temporal data with unresolved external influences. *Comm. in Appl. Math. and Comp. Sci. (CAMCoS)*, 8(2):101–146, 2014.

[13] T. O'Kane, J. Risbey, Ch. Franzke, I. Horenko, and D. Monselesan. Changes in the metastability of the midlatitude southern hemisphere circulation and the utility of nonstationary cluster analysis and split-flow blocking indices as diagnostic tools. *J. Atmos. Sci.*, 70:824–842, 2013.

[14] T. O'Kane, R. Matear, M. Chamberlain, J. Risbey, B. Sloyan, and **I. Horenko**. Decadal variability in an OGCM Southern Ocean: Intrinsic modes, forced modes and metastable states. *Ocean Modelling*, 69:1–21, 2013.

[15] T. O'Kane, R. Matear, M. Chamberlain, J. Risbey, I. Horenko, and B. Sloyan. Low frequency variability in a coupled ocean-sea ice general circulation model of the Southern Ocean. *ANZIAM J.*, 54:200–216, 2013.

[16] J. de Wiljes and A. Majda and **I. Horenko**. An adaptive Markov chain Monte Carlo approach to time series clustering of processes with regime transition behavior. *SIAM Mult. Mod. Sim.*, 11(2):415–441, 2013.

[17] P. Metzner, L. Putzig, and **I. Horenko**. Analysis of persistent non-stationary time series and applications. *Comm. in Appl. Math. and Comp. Sci. (CAMCoS)*, 7(2):175–229, 2012.

[18] D. Giannakis, A. Majda, and **I. Horenko**. Information theory, model error, and predictive skill of stochastic models for complex nonlinear systems. *Physica D: Nonlinear Phenomena*, 241(20):1735–1752, 2012.

[19] Ch. Blume, K. Matthes, and **I. Horenko**. Supervised learning approaches to classify stratospheric warming events. *Journal of the Atmospheric Sciences*, 69:1824–1840, 2012.

[20] **I. Horenko**. On analysis of nonstationary categorical data time series: dynamical dimension reduction, model selection and applications to computational sociology. *SIAM Multi. Mod. Sim.*, 9(4):1700–1726, 2011.

[21] **I. Horenko**. Nonstationarity in multifactor models of discrete jump processes, memory and application to cloud modeling. *J. Atmos. Sci.*, 68(7):1493–1506, 2011.

[22] **I. Horenko** and Ch. Schütte. On metastable conformational analysis of nonequilibrium biomolecular time series. *SIAM Mult. Mod. Sim.*, 8(2):701–716, 2010.

[23] **I. Horenko**. On identification of nonstationary factor models and its application to atmospherical data analysis. *J. of Atmos. Sci.*, 67(5):1559–1574, 2010.

[24] **I. Horenko**. On clustering of non-stationary meteorological time series. *Dynam. of Atm. and Oceans*, 49:164–187, 2010.

[25] **I. Horenko**. Finite element approach to clustering of multidimensional time series. *SIAM J. of Sci. Comp.*, 32(1):62–83, 2010.

[26] L. Putzig, D. Becherer, and **I. Horenko**. Optimal allocation of futures portfolio utilizing numerical market phase-detection. *SIAM J. Financial Mathematics*, 1(1):752–779, 2010.

[27] **I. Horenko**. On robust estimation of low-frequency variability trends in discrete Markovian sequences of atmospheric circulation patterns. *J. of Atmos. Sci.*, 66(11):1941–1954, 2009.

[28] Ch. Franzke, I. Horenko, A. Majda, and R. Klein. Systematic metastable atmospheric regime identification in an AGCM. *J. Atmos. Sci.*, 66(7):1997–2012, 2009.

[29] **I. Horenko** and R. Klein, S. Dolaptchiev, and Ch. Schütte. Automated generation of reduced stochastic weather models I: simultaneous dimension and model reduction for time series analysis. *SIAM Mult. Mod. Sim.*, 6(4):1125–1145, 2008.

[30] **I. Horenko** and Ch. Schütte. Likelihood-based estimation of multidimensional Langevin models and its application to biomolecular dynamics. *SIAM Mult. Mod. Sim.*, 7(2):731–773, 2008.

[31] **I. Horenko**, S. Dolaptchiev, A. Eliseev, I. Mokhov, and R. Klein. Metastable decomposition of high-dimensional meteorological data with gaps. *J. of Atmos. Sci.*, 65(11):3479–3496, 2008.

[32] **I. Horenko**, E. Dittmer, F. Lankas, J. Maddocks, P. Metzner, and Ch. Schütte. Macroscopic dynamics of complex metastable systems: theory, algorithms and application to B-DNA. *SIAM J. Appl. Dyn. Syst.*, 7(2):532–560, 2008.

[33] **I. Horenko**. On simultaneous data-based dimension reduction an hidden phase identification. *J. of Atmos. Sci.*, 65(6):1941–1954, 2008.

[34] **I. Horenko**, C. Hartmann, Ch. Schütte, and F. Noe. Data-based parameter estimation of generalized multidimensional Langevin processes. *Phys. Rev. E*, 76(01):016706, 2007.

[35] F. Noe, I. Horenko, Ch. Schütte, and J. C. Smith. Hierarchical analysis of conformational dynamics in biomolecules: Transition networks of metastable states. *J. Chem. Phys.*, 126(15):155102, 2007.

[36] Ph. Metzner, I. Horenko, and Ch. Schütte. Generator estimation of Markov jump processes based on incomplete observations nonequidistant in time. *Phys. Rev. E*, 76(06):066702, 2007.

[37] A. Fischer, S. Waldhausen, I. Horenko, E. Meerbach, and Ch. Schütte. Identification of biomolecular conformations from incomplete torsion angle observations by Hidden Markov Models. *J. Comp. Chem.*, 28(15):2453–2464, 2007.

[38] **I. Horenko**, E. Dittmer, A. Fischer, and Ch. Schütte. Automated model reduction for complex systems exhibiting metastability. *SIAM Mult. Mod. Sim.*, 5(3):802–.827, 2006.

[39] **I. Horenko**, S. Lorenz, Ch. Schütte, and W. Huisinga. Adaptive approach for non-linear sensitivity analysis of reaction kinetics. *J. Comp. Chem.*, 26(9):941–948, 2005.

[40] **I. Horenko**, E. Dittmer, and Ch. Schütte. Reduced stochastic models for complex molecular systems. *SIAM Comp. Vis. Sci.*, 9(2):89–102, 2005.

[41] **I. Horenko**, M. Weiser, B. Schmidt, and Ch. Schütte. Fully adaptive propagation of the quantum-classical liouville equation. *J. Chem. Phys.*, 2004.

[42] **I. Horenko** and M. Weiser. Adaptive integration of molecular dynamics. *J. Comp. Chem.*, 2003.

[43] **I. Horenko**, Ch. Salzmann, B. Schmidt, and Ch. Schütte. Quantum-classical liouville approach to molecular dynamics: Surface hopping gaussian phase-space packets. *J. Chem. Phys.*, 117(24):11075–11088, 2002.

[44] **I. Horenko**, B. Schmidt, and Ch. Schütte. Multidimensional classical liouville dynamics with quantum initial conditions. *J. Chem. Phys.*, 2002.

[45] **I. Horenko**, B. Schmidt, and Ch. Schütte. A theoretical model for molecules interacting with intense laser pulses: The floquet-based quantum-classical liouville equation. *J. Chem. Phys.*, 115(13):5733–5743, 2001.

Book Chapters and Proceedings

[46] **I. Horenko** and S. Gerber, Terence J. O'Kane, James S. Risbey, and Didier P. Monselesan. On inference and validation of causality relations in climate teleconnections. In *Nonlinear and Stochastic Climate Dynamics*. Cambridge University Press, 2016.

[47] P. Metzner, M. Waidmann, D. Igdalov, T. von Larcher, I. Horenko, R. Klein, A. Beck, G. Gassner, and C.D. Munz. A stochastic closure approach for les with application to turbulent channel flow. In Jochen Frhlich, Hans Kuerten, Bernard J. Geurts, and Vincenzo Armenio, editors, *Direct and Large-Eddy Simulation IX*, volume 20 of *ERCOFTAC Series*, pages 49–55. Springer International Publishing, 2015.

[48] Th.von Larcher, R. Klein, I. Horenko, P. Metzner, M. Waidmann, D. Igdalov, A.D. Beck, G.J. Gassner, and C.D. Munz. Towards a stochastic closure approach for large eddy simulation. In Jürgen Fuhrmann, Mario Ohlberger, and Christian Rohde, editors, *Finite Volumes for Complex Applications VII-Elliptic, Parabolic and Hyperbolic Problems*, volume 78 of *Springer Proceedings in Mathematics and Statistics*, pages 883–890. Springer International Publishing, 2014.

[49] Terence J. O'Kane, James S. Risbey, Christian Franzke, Illia Horenko, and Didier P. Monselesan. The metastability of the mid-latitude southern hemisphere circulation. In Scott McCue, Tim Moroney, Dann Mallet, and Judith Bunder, editors, *Proceedings of the 16th Biennial Computational Techniques and Applications Conference, CTAC-2012*, volume 54 of *ANZIAM J.*, pages C233–C249, May 2013.

[50] E. Meerbach, Ch. Schütte, I. Horenko, and B. Schmidt. Metastable conformational structure and dynamics: Peptides between gas phase and aqueous solution. In O. Kühn and L. Wöste, editors, *Analysis and Control of Ultrafast Photoinduced Reactions*, volume 87 of *Series in Chemical Physics*, pages 796–806. Springer, 2007.

[51] A. Weisse, I. Horenko, and W. Huisinga. Adaptive approach for modelling variability in pharmacokinetics. In M. Berthold, R. Glen, and I. Fischer, editors, *Lecture Notes in Computer Science*, volume 4216 of *Computational Life Sciences*, pages 194–204. Springer, 2006.

[52] **I. Horenko** and J. Schmidt-Ehrenberg and Ch. Schütte. Set-oriented dimension reduction: Localizing principal component analysis via hidden Markov models. In M. Berthold, R. Glen, and I. Fischer, editors, *Lecture Notes in Computer Science*, volume 4216 of *Computational Life Sciences*, pages 74–85. Springer, 2006.

[53] E. Meerbach, E. Dittmer, I. Horenko, and Ch. Schütte. Multiscale modelling in molecular dynamics: Biomolecular conformations as metastable states. In M. Ferrario, G. Ciccotti, and K. Binder, editors, *Computer Simulations in Condensed Matter: Systems: From Materials to Chemical Biology. Volume I*, volume 703 of *Lecture Notes in Physics*, pages 475–497. Springer, 2006.

Patents

[54] I. Horenko and Ch. Schütte. Method for operation of the signal device. *World Intellectual Property Organisation*, Pub. No. WO/2008/113705, 2008. (Available at www.wipo.int/pctdb/en/wo.jsp?WO=2008113705).

Publication Impact

Bibliometrics[1]:

- 56 peer-reviewed journal publications
- 1 patent
- h-index: **21**
- Total number of citations: **1245**
- Number of citations within the last 5 years: **817**

Number of citations for my ten most cited papers

cited	Article	Reference
254	Hierarchical analysis of conformational dynamics in biomolecules:Transition networks of metastable states	[35]
117	Quantum-Classical Liouville Approach to Molecular Dynamics: Surface Hopping Gaussian Phase-Space Packets	[43]
50	Automated model reduction for complex systems exhibiting metastability	[38]
50	On the identification of nonstationary factor models and their application	[23]
48	Finite element approach to clustering of multidimensional time series	[25]
45	On clustering of non-stationary meteorological time series	[24]
43	Fully adaptive propagation of the quantum-classical Liouville equation	[41]
42	Systematic metastable atmospheric regime identification in an AGCM	[28]
38	Likelihood-based estimation of multidimensional Langevin models and its Application to Biomolecular Dynamics	[30]
35	Data-based Parameter Estimation of Generalized Multidimensional Langevin Processes	[34]

[1]Google Scholar as of 10/2016. scholar.google.com

Impact factor of journals I published in [2]:

IF	Journal name	Articles published
9.67	Proceedings of the National Academy of Sciences of USA (PNAS)	[11]
4.67	Climate Dynamics	[6]
3.59	Journal of Computational Chemistry	[42, 39, 37]
3.55	Water Resources Research	[3]
3.03	Journal of the Atmospheric Sciences (J. of Atmos. Sci.)	[33, 31, 28, 27, 23] [21, 19, 13, 5]
3.02	The Journal of Chemical Physics	[45, 43, 44, 41, 35]
2.93	Ocean Modeling & Simulation	[14]
2.29	Physical Review E	[36, 34]
1.80	Multiscale Modeling & Simulation	[7]
2.40	Communications in Applied Mathematics and Comp. Science	[17, 12, 10]
2.01	SIAM Journal of Multiscale Modeling and Simulation	[38, 29, 30, 22, 20, 16]
1.90	SIAM Journal of Scientific Computing	[25]
1.89	Physica D Nonlinear Phenomena	[18]
1.69	Nonlinear Processes in Geophysics	[9][**?**]
1.58	Dynamics of Atmosphere and Oceans (DYNAT)	[24]
1.44	SIAM Journal on Applied Dynamical Systems	[32]
1.19	Meteorologische Zeitschrift	[4]
1.03	The Journal of the Australian Mathematical Society (ANZIAM)	[15]
1.25	SIAM Journal on Financial Mathematics	[26]

[2] As of 2014. Source: http://www.journal-database.com