

Joakim Stenhammar

Curriculum Vitae

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Contact information

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Physical Chemistry
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Personal information

Full name: Per **Joakim** Alexander Stenhammar
Date of Birth: 22nd December 1983
Place of Birth: Norrköping, Sweden
Citizenship: Swedish
Languages: Swedish (mother tongue),
English (fluent), French (basic)

Academic positions

- ◇ 2/2020– Senior lecturer (tenured), Division of Physical Chemistry, Lund University
- ◇ 6/2016–1/2020 Associate senior lecturer (tenure track), Division of Physical Chemistry, Lund University
- ◇ 2/2015–5/2016 Researcher, Division of Physical Chemistry, Lund University
- ◇ 4/2012–1/2015 Postdoctoral Research Associate with Prof. Michael E. Cates, School of Physics and Astronomy, University of Edinburgh, UK
- ◇ 9/2007–2/2012 PhD student, Division of Physical Chemistry, Lund University

Academic degrees

- ◇ 2018 Docent (Associate Professor) in Physical Chemistry, Lund University
- ◇ 2012 PhD in Physical Chemistry, Lund University
Award date: February 3rd 2012
Thesis: “Theoretical Studies of Simple Polar Fluids”
- ◇ 2007 Master of Science (4 years) with specialization in Chemistry, Lund University
- ◇ 2007 University Diploma (2 years) in Musicology, Lund University

Grants and Awards

- ◇ 2020–2022 The Crafoord Foundation, 1-year project grant (400 kSEK)
- ◇ 2020–2024 Swedish Research Council, 4-year project grant (3.2 MSEK)

- ◇ 2020–2025 Co-applicant on grant "Active Matter Goes Smart" from the Knut and Alice Wallenberg Foundation (37 MSEK)
- ◇ 2019 Shortlisted and ranked A in second round of ERC Starting Grant evaluations
- ◇ 2019–2020 The Crafoord Foundation, 1-year project grant (400 kSEK)
- ◇ 2017–2019 The Crafoord Foundation, 2-year project grant (1.2 MSEK)
- ◇ 2016–2020 Co-PI on grant AniForce from the Knut and Alice Wallenberg Foundation
- ◇ 2016–2019 Swedish Research Council, 4-year project grant for young researchers (3.34 MSEK)
- ◇ 2015 Akzo Nobel Nordic Prize in Surface Chemistry (20000 SEK)
- ◇ 2013 Inga Fischer-Hjalmars Award for outstanding PhD thesis in theoretical chemistry, awarded by the Swedish Chemical Society
- ◇ 2012–2015 Swedish Research Council, 3-year international postdoc grant (3.15 MSEK)

Commissions of trust *etc.*

- ◇ 2018– Advisory board member of *Soft Matter* (RSC Publishing)
- ◇ 2017–2018 Guest editor for special issue of *Soft Matter* on *Electrostatics and Soft Matter* (together with Christos Likos)
- ◇ 2017 Member of PhD committee for Natasha Kamerlin, Uppsala University
- ◇ 2017– Member of steering group for the research school QDETAILSS, Lund University

Oral Conference Presentations and Invited Seminars

- ◇ 3/2020 11th Nordic Workshop on Statistical Physics, Stockholm (invited)
- ◇ 2/2020 CECAM workshop "Frontiers in Computational Methods for Active Matter", Lausanne (invited)
- ◇ 10/2019 CECAM workshop "Active Matter and Artificial Intelligence", Lausanne (invited)
- ◇ 4/2019 "Interdisciplinary Challenges in Non-Equilibrium Physics", Edinburgh (invited)
- ◇ 1/2018 "From Active Matter to Complex Fluids", Nice (invited)
- ◇ 10/2017 Invited seminar, Centre for Interdisciplinary Mathematics, Uppsala
- ◇ 9/2017 Invited seminar, Department of Physics, Gothenburg University
- ◇ 7/2017 10th Liquid Matter Conference, Ljubljana (contributed)
- ◇ 3/2017 8th Nordic Workshop on Statistical Physics, Stockholm (invited)
- ◇ 1/2017 Invited seminar, NORDITA, Stockholm

- ◇ 9/2016 4th International Soft Matter Conference, Grenoble (contributed)
- ◇ 8/2016 Swedish Theoretical Chemistry meeting, Lund (invited)
- ◇ 6/2016 “Organizing Molecular Matter – A Soft Matter Symposium”, Lund (invited)
- ◇ 1/2016 Physical Principles of active and biological systems, Edinburgh (contributed)
- ◇ 11/2015 Invited seminar, Technical University of Vienna
- ◇ 11/2015 ASMCS 2015, Uppsala (invited)
- ◇ 7/2015 24th Conference on Discrete Simulation of Fluid Dynamics, Edinburgh (contributed)
- ◇ 6/2015 eSENCE conference on Multiscale Materials Modelling, Uppsala (invited)
- ◇ 4/2015 “Microswimmers – from bulk to interfaces”, Bordeaux (contributed)
- ◇ 12/2014 British Society of Rheology’s Midwinter Meeting, Durham (contributed)
- ◇ 11/2014 67th Meeting of the APS Division of Fluid Dynamics, San Francisco (contributed)
- ◇ 10/2014 Invited seminar, Warwick University
- ◇ 7/2014 9th Liquid Matter conference, Lisbon (contributed)
- ◇ 11/2011 Invited seminar, Helmholtz-Zentrum, Potsdam
- ◇ 9/2010 8th European Conference on Computational Chemistry, Lund (contributed)

Graduate student supervision, current

- ◇ 2018– PhD student Aykut Argun (main supervisor: Giovanni Volpe, Gothenburg University)
- ◇ 2017– PhD student Henrik Nordanger (main supervisor)
- ◇ 2017– PhD student Tobias Nitschke (main supervisor: Raphael Wittkowski, WWU Münster)
- ◇ 2016– PhD student Dóra Bárdfalvy (main supervisor)
- ◇ 2016– PhD student Junhao Dong (main supervisor: Martin Trulsson)

Graduate student supervision, previous

- ◇ 2020 MSc student André Nüsslein
- ◇ 2019 MSc student Shan Anjum (main supervisor)
- ◇ 2016–2019 PhD student Jasper Immink (main supervisor: Peter Schurtenberger)
- ◇ 2016–2017 MSc student Erik Maris (main supervisor: Peter Schurtenberger)

Postdoc supervision

- ◇ 2020– Jason Lewis
- ◇ 2017–2020 Mehdi Shafei (Bilkent University)
- ◇ 2016–2017 Arash Azari

Formal teaching training

- ◇ 2016 Completed a three-week doctoral supervision training course at the Faculty of Science, Lund University
- ◇ 2009 Completed the two-week course Learning and Teaching in Higher Education: An Introduction at the Centre for Educational Development, Lund University
- ◇ 2005 2-day course to qualify as Supplemental Instruction (SI) leader

Teaching experience

- ◇ 2020 Lecturer, introductory level course in physical chemistry
- ◇ 2016– Tutor, introductory level course in general chemistry
- ◇ 2010, 2016– Lecturer, advanced level course in surface and colloid chemistry
- ◇ 2009, 2010 Tutor, intermediate level course in physical chemistry
- ◇ 2008 Tutor and lab assistant, intermediate level course in surface and colloid chemistry
- ◇ 2008 Lab assistant, introductory level course in general and inorganic chemistry
- ◇ 2005–2006 SI leader, introductory level courses in organic and inorganic chemistry

Reviewing assignments

- ◇ Recurring reviewing assignments for international chemistry and physics journals such as *Physical Review Letters*, *Physical Review X*, *Reviews of Modern Physics*, *Physical Review E*, *Soft Matter*, *Journal of Chemical Theory and Computation*, *New Journal of Physics*, *EPL*, and *Journal of Chemical Physics*
- ◇ External reviewer for project grants from the German Research Foundation (DFG)

Peer-reviewed publications and submitted manuscripts

Total number of citations (Google Scholar, August 17th 2020): 1541

34. Crystal-to-Crystal Transitions in Binary Mixtures of Soft Colloids
J. N. Immink, M. J. Bergman, J. J. E. Maris, **J. Stenhammar**, and P. Schurtenberger
Submitted manuscript
33. Swimming suppresses correlations in dilute suspensions of pusher microorganisms
V. Škultéty, C. Nardini, **J. Stenhammar**, D. Marenduzzo, and A. Morozov
arXiv:2001.01954 (2020)
32. Tube to ribbon transition in a self-assembling model peptide system
A. Rüter, S. Kuczera, **J. Stenhammar**, T. Zinn, T. Narayanan, and U. Olsson
Phys. Chem. Chem. Phys., Advance Article (2020)
31. Symmetric mixtures of pusher and puller microswimmers behave as noninteracting suspensions
D. Bárdfalvy, S. Anjum, C. Nardini, A. Morozov, and **J. Stenhammar**
Phys. Rev. Lett. **125**, 018003 (2020)
30. Anisotropic dynamics of a self-assembled colloidal chain in an active bath
M. Shafiei Aporvari, M. Utkur, E. U. Saritas, G. Volpe, and **J. Stenhammar**
Soft Matter **16**, 5609 (2020)
29. Derivation of the Derjaguin approximation for the case of inhomogeneous solvents
H. Wennerström and **J. Stenhammar**
J. Chem. Phys. **152**, 234704 (2020)
28. Pair-distribution function of active Brownian spheres in two spatial dimensions: simulation results and analytic representation
J. Jeggle, **J. Stenhammar**, and R. Wittkowski
J. Chem. Phys. **152**, 194903 (2020)
27. Using patchy particles to prevent local rearrangements in models of non-equilibrium colloidal gels
J. Immink, J. J. E. Maris, P. Schurtenberger, and **J. Stenhammar**
Langmuir **36**, 419 (2020)
26. Particle-resolved lattice Boltzmann simulations of 3-dimensional active turbulence
D. Bárdfalvy, H. Nordanger, C. Nardini, A. Morozov, and **J. Stenhammar**
Soft Matter **15**, 7747 (2019)
25. Reversible Formation of Thermoresponsive Binary Particle Gels with Tunable Structural and Mechanical Properties
J. Immink, E. Maris, J. J. Crassous, **J. Stenhammar**, and P. Schurtenberger
ACS Nano **13**, 3292 (2019)
24. Generalized thermodynamics of Motility-Induced Phase Separation: Phase equilibria, Laplace pressure, and change of ensembles
A. P. Solon, **J. Stenhammar**, M. E. Cates, Y. Kafri, and J. Tailleur
New J. Phys. **20**, 075001 (2018)

23. Generalized Thermodynamics of Phase Equilibria in Scalar Active Matter
A. P. Solon, **J. Stenhammar**, M. E. Cates, Y. Kafri, and J. Tailleur
Phys. Rev. E **97**, 020602(R) (2018)
22. Directed Self-Assembly of Polarizable Ellipsoids in an External Electric Field
A. Azari, J. Crassous, A. M. Mihut, E. Bialik, P. Schurtenberger, **J. Stenhammar** and P. Linse
Langmuir **33**, 13834 (2017)
21. Nonequilibrium dynamics of mixtures of active and passive colloidal particles
R. Wittkowski, **J. Stenhammar**, and M. E. Cates
New J. Phys. **19**, 105003 (2017)
20. Role of correlations in the collective behavior of microswimmer suspensions
J. Stenhammar, C. Nardini, R. W. Nash, D. Marenduzzo, and A. Morozov
Phys. Rev. Lett. **119**, 028005 (2017)
19. Stirring by periodic arrays of microswimmers
J. de Graaf and **J. Stenhammar**
J. Fluid. Mech. **811**, 487-498 (2017)
18. Lattice-Boltzmann simulations of microswimmer-tracer interactions
J. de Graaf and **J. Stenhammar**
Phys. Rev. E **95**, 023302 (2016)
17. Light-induced self-assembly of active rectification devices
J. Stenhammar, R. Wittkowski, D. Marenduzzo, and M. E. Cates
Sci. Adv. **2**, e1501850 (2016).
16. Pressure and phase equilibria in interacting active brownian spheres
A. Solon, **J. Stenhammar**, R. Wittkowski, M. Kardar, Y. Kafri, M. E. Cates, and J. Tailleur
Phys. Rev. Lett., **114**, 198301 (2015)
15. Activity-induced phase separation and self-assembly in mixtures of active and passive particles
J. Stenhammar, R. Wittkowski, D. Marenduzzo, and M. E. Cates
Phys. Rev. Lett. **114**, 018301 (2015)
14. Scalar ϕ^4 field theory for active-particle phase separation
R. Wittkowski, A. Tiribocchi, **J. Stenhammar**, R. J. Allen, D. Marenduzzo, and M. E. Cates
Nat. Commun. **5**, 4351 (2014)
13. Phase behaviour of active Brownian particles: the role of dimensionality
J. Stenhammar, D. Marenduzzo, R. J. Allen, and M. E. Cates
Soft Matter **10**, 1489-1499 (2014)
12. Continuum Theory of Phase Separation Kinetics for Active Brownian Particles
J. Stenhammar, A. Tiribocchi, R. J. Allen, D. Marenduzzo, and M. E. Cates
Phys. Rev. Lett. **111**, 145702 (2013)
11. Structural anisotropy in polar fluids subjected to periodic boundary conditions
J. Stenhammar, P. Linse, and G. Karlström
J. Chem. Theor. Comput. **7**, 4165-4174 (2011)

10. Classical van der Waals interactions between spherical bodies of dipolar fluid
J. Stenhammar and M. Trulsson
Phys. Rev. E, **84**, 011117 (2011)
9. Some comments and corrections regarding the calculation of electrostatic potential derivatives using the Ewald summation technique
J. Stenhammar, M. Trulsson, and P. Linse
J. Chem. Phys., **134**, 224104 (2011)
8. Anisotropic electric fluctuations in polar liquids under spherical confinement
J. Stenhammar, P. Linse, and G. Karlström
Mol. Phys. **109**, 11–20 (2011)
7. A unified treatment of polar solvation using electrostatic fluctuations
J. Stenhammar, P. Linse, and G. Karlström
Chem. Phys. Lett. **501**, 364–368 (2011)
6. An Exact Calculation of the van der Waals Interaction between Two Spheres of Classical Dipolar Fluid
J. Stenhammar, P. Linse, H. Wennerström, and G. Karlström
J. Phys. Chem. B **114**, 13372–13380 (2010)
5. Bulk simulation of polar liquids in spherical symmetry
J. Stenhammar, P. Linse, and G. Karlström
J. Chem. Phys. **132**, 104507 (2010)
4. Nondielectric long-range solvation of polar liquids in cubic symmetry
J. Stenhammar, P. Linse, and G. Karlström
J. Chem. Phys. **131**, 164507 (2009)
3. Electric multipole moment fluctuations in polar liquids
J. Stenhammar, P. Linse, P.-Å. Malmqvist, and G. Karlström
J. Chem. Phys. **130**, 124521 (2009)
2. Effects of different boundary conditions on the long-range structure of polar liquids
G. Karlström, **J. Stenhammar**, and P. Linse
J. Phys.: Condens. Matter **20**, 494204 (2008)
1. Packaging of a flexible polyelectrolyte inside a viral capsid: Effect of salt concentration and salt valence
D. Angelescu, **J. Stenhammar**, and P. Linse
J. Phys. Chem. B **111**, 8477 (2007)

Popular science articles, editorials

3. Electrostatics and Soft Matter: a Themed Collection in memory of Per Linse
C. N. Likos and **J. Stenhammar**, *Soft Matter* **14**, 4019 (2018)
2. En bakterie simmar aldrig ensam
J. Stenhammar, *Kemivärlden Biotech* 5/2017

1. Aktiva kolloider bygger programmerbara material
J. Stenhammar, Kemivärlden Biotech 3/2016