

## Dr Aljaz Godec

Mathematical bioPhysics group, Max Planck Institute for Multidisciplinary Sciences

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### Personal data:

Family name, first name: Godec Aljaz

Date of birth: 22nd February 1984 (Maribor, Slovenia)

Nationality: Slovenia

Marital status: married, with three children

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### Education and Positions:

Diploma (2007) and Doctorate (2012), University of Ljubljana, Slovenia

2017 - present head of the Mathematical bioPhysics Group, Max Planck Institute for Multidisciplinary Sciences, Göttingen, Germany  
(formerly Max Planck Institute for Biophysical Chemistry)  
(hosted by Prof. Helmut Grubmüller)

2014 - 2017 Alexander von Humboldt postdoctoral fellow, Theoretical Physics at the Institute of Physics and Astronomy, University of Potsdam, Germany  
(with Prof. Ralf Metzler)

2013 - 2017 research associate, Theory Department, National Institute of Chemistry (NIC), Ljubljana, Slovenia (on leave)

2012 - 2014 postdoctoral fellow, Theoretical Physics at the Institute of Physics and Astronomy, University of Potsdam, Germany (with Prof. Ralf Metzler)

2012 - 2013 research fellow, Theory Department, National Institute of Chemistry, Ljubljana, Slovenia (on leave)

2007 - 2012 young researcher, Theory Department, NIC Ljubljana, Slovenia

**Other education and training:**

- 2021 Training on “Unconscious bias & thought patterns” – workshop on gender-IQ
- 2009 Training on intellectual property, patent practice and academics entrepreneurship (workshop organized by the Slovenian research agency ARRS in Ljubljana)
- 2008 39th IFF Spring School on soft matter physics: Soft Matter – From Synthetic to Biological Materials, Research Centre Jülich (GER)

**Languages:**

Slovene (mother tongue), English (proficient), German (proficient); FORTRAN (proficient), Mathematica (proficient)

**Publications and citations:**

72 journal articles, 1 book chapter; Hirsch factor (H-index): Web of Science 23, Google Scholar 27; Citations: >2000 citations; >70 citations in 2015, >80 citations in 2016, >100 citations in 2017, >100 citations in 2018, >150 citations in 2019, >220 citations in 2020, >230 citations in 2021, >250 citations in 2022, >300 citations in 2023, >140 citations in 2024 (so far)

**Awards, prizes and honors:**

- 2023 DFG Heisenberg group / professorship
- 2023 ERC Consolidator Grant
- 2022 Henriette Herz-Scout of the Alexander von Humboldt foundation
- 2020 Outstanding Reviewer for Journal of Physics A: Math. Theor.
- 2017 Karl-Scheel Prize of the Berlin Physical Society (PGzB)
- 2017 Academy of Finland Fellow (declined)
- 2017 DFG Emmy Noether group
- 2016 Journal of Physics A Emerging talent
- 2016 PKS Distinguished Postdoctoral Fellow (declined)
- 2015 participant in the 65<sup>th</sup> Lindau Nobel laureate meeting
- 2015 Josef Stefan Golden Emblem Prize for PhD thesis with the highest impact
- 2014 Alexander von Humboldt fellowship for postdoctoral researchers
- 2012 Pregl award for exceptional PhD thesis
- 1998-2007 Zois scholarship for gifted students

**Recent Conferences and Seminars/Workshops (since 2020) (\* = virtual)**

- 2024 Physics Colloquium, Univ. of Freiburg (GER) - *Thermal relaxation asymmetry: When and why heating is faster than cooling* (invited talk)
- 2024 Edinburgh Statistical Physics and Complexity Webinar, Univ. of Edinburgh (UK) - *On time-reversal symmetry and dissipation in dynamics with memory* (invited talk\*)
- 2023 Transport Phenomena and Fluctuations in Small Complex Systems, Buenos Aires (AR) - *Thermal relaxation asymmetry in reversible and driven systems* (invited talk)
- 2023 5<sup>th</sup> Nottingham Workshop on Quantum Non-Equilibrium Dynamics, Nottingham (UK) - *Towards a sample path-based statistical mechanics* (invited talk)
- 2023 36<sup>th</sup> Smoluchowski Symposium”, Krakow Univ. (PL) - *Thermal relaxation asymmetry in reversible and driven systems* (invited talk)
- 2023 “Living-Matter-Physics Seminar”, Max Planck Institute for Dynamics and Self-Organization, Göttingen (GER) - *Direct Proof of Thermodynamic Uncertainty Relations* (invited talk)
- 2023 “Workshop on Stochastic Thermodynamics - WOST IV”, ICTP Trieste (ITA) - *Dimensionality in sample-path statistical mechanics:  $d = 1$  really is the loneliest number* (invited talk\*)
- 2023 “In search of model structures for non-equilibrium systems”, Univ. of Münster

- (GER) - *Interfaces and dynamical transitions in strongly interacting many-body systems* (invited talk)
- 2023 “Fluctuations and First-Passage Problems”, NORDITA Stockholm (SWE) - *Towards a sample path-based statistical mechanics* (invited talk)
- 2023 “SFB-1114: Scaling Cascades in Complex Systems” Colloquium, Free University Berlin (GER) - *Towards a sample path-based statistical mechanics* (invited talk)
- 2022 “CeNoS Colloquium”, Univ. of Münster (GER) - *Interfaces and Dynamical Transitions in Strongly Interacting Many-body Systems* (invited talk)
- 2022 “Rare Events in Physics and Climate”, Ben Gurion University of the Negev (IL) - *Extreme value statistics of ergodic diffusion processes* (invited talk)
- 2022 CECAM workshop “Data Modeling and Computation”, EPFL Lausanne (CH) - *Time-reversal symmetry and dissipation in dynamics with memory* (invited talk)
- 2022 CPTS Symposium of the Max Planck Society, Harnack house Berlin (GER) - *Time-reversal symmetry and dissipation in dynamics with memory* (invited talk)
- 2022 BMS Symposium of the Max Planck Society, Harnack house Berlin (GER) - *Biological challenges for non-equilibrium physics* (invited talk)
- 2022 Venice meeting on Fluctuations in small complex systems VI (ITA) - *Time (ir)reversibility in the presence of memory* (invited talk)
- 2022 WE-Heraeus-Seminar on “Entropy and the Second Law of Thermodynamics –” “The past, the present, and the future”, Physikzentrum Bad Honnef (GER) - *Time-reversal symmetry and dissipation in dynamics with memory* (invited talk)
- 2022 Non-Markovian dynamics far from equilibrium, ICTP Trieste (ITA) - *Time-reversal symmetry and dissipation in dynamics with memory* (invited talk)
- 2022 DFG Research Unit FOR-5099 Colloquium, University of Freiburg (GER) - *Physics of shadows: thermodynamic implications of memory in coarse-grained dynamics* (invited talk \*)
- 2022 Physics Colloquium, CUA Washington (USA) - *Physics of shadows: thermodynamic implications of memory in low-dimensional observables* (invited talk \*)
- 2021 Venice meeting on Fluctuations in small complex systems V (ITA) - *Criticality in stochastic many-body systems: from cell adhesion to the Ising model (and back)* (invited talk)
- 2021 Physics Colloquium, Northwestern Polytechnical University (China) - *Observing Shadows: Mathematical Signatures of Memory and Their Physical Interpretation* (invited talk; virtual)
- 2021 Physics & Applied Mathematics Colloquium, University of Shanghai (virtual) - *Observing Shadows: Mathematical Signatures of Memory and Their Physical Interpretation* (invited talk)
- 2021 DPG Spring Meeting (virtual) - *Small diffusive systems warm up faster than they cool down* (invited talk / “Hauptvortrag”)
- 2021 APS March Meeting (virtual) - *Small systems warm up faster than they cool down* (contributed talk)
- 2020 Physics colloquium, NORDITA Stockholm (SWE) - *Why small systems warm up faster than they cool down* (invited talk)

### Research funding and supervision:

- Funding:** - Research Cooperation Lower Saxony - Israel, Volkswagen Stiftung (2024-2027; 300 K EUR, together with Oren Raz [Weizmann Institute, Israel])
- Heisenberg group/professorship, German Research Foundation (DFG)
- ERC Consolidator Grant (2023-2028; 2 million EUR)
- Henriette Herz-Scout of the Alexander von Humboldt Foundation

- (2022; 2 postdoc positions for 2 years)  
 - Emmy Noether research group, German Research Foundation (DFG) (2017-2023; ~1.7 million EUR)  
 - Academy of Finland Fellow (declined), Academy of Finland (2017-2022, ~440 K EUR)  
 - Humboldt Fellowship for Postdoctoral Researchers, Alexander von Humboldt foundation (2014-2017; 125 K EUR)  
 - Independent research project, Slovenian Research Agency ARRS (2016-2017, 50 K EUR)

### Supervision:

**Completed:** BSc Theses: Oliver Kindler (2014), Alex Berdin (2014), and Markus Dahlenburg (2015) [co-supervisor, University of Potsdam]  
 Michelle Kemper (2019), Mathematics Dept., Univ. Göttingen, [co-supervision with Prof. Anja Sturm]  
 Santiago Carrero Ibanez, Mathematics Dept. Univ. Göttingen, [co-supervision with Prof. Anja Sturm],  
 Santiago Carrero Ibanez (2024), Physics Dept., Univ. Göttingen  
Diploma Thesis: Ivan Jamnik (2012) [co-supervisor, University of Ljubljana]  
MSc Theses: Maria Schwarzl, (2014) [co-supervisor, University of Potsdam],  
 Janik Schüttler (2021), Physics Dept., ETH Zürich [co-supervision with Prof. Matthias Krüger], Gerrit Wellecke (2022), Physics Dept., Univ. Göttingen  
PhD Theses: Henning Krüsemann (2016) [co-supervisor, University of Potsdam]  
 Alessio Lapolla (2021), Physics Dept. & GGNB-PBCS, Univ. Göttingen  
 Maximilian Vossel (2022) Physics Dept. & GGNB-PBCS, Univ. Göttingen  
 Kristian Blom (2022) Physics Dept. & GGNB-PBCS, Univ. Göttingen  
 Cai Dieball (2023) Physics Dept. & GGNB-PBCS, Univ. Göttingen

### Ongoing: BSc Theses:

Maximilian Keitel (since Dec. 2022), Physics Dept., Univ. Göttingen

### MSc Theses:

David Roman Wentzke (since Sep. 2023), Mathematics Dept., Univ. Göttingen

Lars Stutzer (since Dec. 2023), Physics Dept., Univ. Göttingen

### PhD Theses:

Rick Bebon (since Jan. 2022), Felix Tippner (since Apr. 2023),

Francesco Malcangi (since Jun. 2023), Felipe Pereira Alves (since Aug. 2023)

### Refereeing

Referee for: Science Advances; PNAS; Physical Review Letters; Physical Review X; Nature Communications; Physical Review Research; Physical Review E; New Journal of Physics; Journal of Statistical Mechanics; Journal of Chemical Physics; Scientific Reports; Soft Matter; Journal of Physics A: Mathematical and Theoretical; Biophysical Journal; Biophysical Reports; PlosONE; Proceedings of the Royal Society A; Chaos, Solitons & Fractals; Journal of Biological Physics; Biophysical Journal; Europhysics Letters; Langmuir; Physics Letters A; Applied Mathematics and Computation; Physica A; Physical Biology; Acta Biomaterialia

### Editorial role

Associate editor for: Frontiers in Physics

### Teaching experience

- i) Full faculty member of GGNB (Göttingen Graduate School for Neurosciences, Biophysics, and Molecular Biosciences) & GAUSS (Georg-August University School of Science)
- ii) Lecturing:
  - *Current Topics in Theoretical Physics*, Masters program in Physics (Univ. of Göttingen)
  - *Advanced Mathematical Methods in Statistical Mechanics* (GGNB/GAUSS graduate course in the program 'Physics of Biological and Complex systems' – PBCS)

- *Advanced Computational Methods in Statistical Mechanics* (GGNB/GAUSS graduate course in the program 'Physics of Biological and Complex systems' – PBCS)
- *Current Topics in Biophysics* (GGNB/GAUSS program PBCS)
- *Theoretical Physics and Theory and applications of stochastic processes and Biophysics* (at Univ. of Potsdam, substituting for Prof. Ralf Metzler)

## 1 LIST OF PUBLICATIONS

### A Manuscripts under review:

- A.1 L. Vollmar, R. Bebon, J. Schimpf, B. Flietel, S. Celiksoy, C. Sönnichsen, **A. Godec**, T. Hugel, *Model-free inference of memory in conformational dynamics of a multi-domain protein*. Under review (2024). (arXiv:2404.16799)
- A.2 C. Dieball & **A. Godec**, *Thermodynamic bounds on generalized transport: From single-molecule to bulk observables*. Under revision (2024). (arXiv:2403.00048)
- A.3 H. De & **A. Godec**, *Vorticity and level-set variations of invariant current bound steady-state dissipation*. Under review (2023). (arXiv:2306.13647)
- A.4 K. Blom & **A. Godec**, *Global Speed Limit for Finite-Time Dynamical Phase Transition in Nonequilibrium Relaxation*. Under review (2023). (arXiv:2209.14287)
- A.5 M. Vossel, B. de Groot, & **A. Godec**, *The allosteric lever: towards a principle of specific allosteric response*. Under revision (2023). (arXiv:2311.12025)
- A.6 D. Hartich & **A. Godec**, *Comment on "Inferring broken detailed balance in the absence of observable currents"*. Revised version under review (2022). (arXiv:2112.08978)

### B Journal articles:

- B.1 K. Blom, K. Song, E. Vouga, **A. Godec**, & D. E. Makarov, *Milestoning estimators of dissipation in systems observed at a coarse resolution*. [Proc. Natl. Acad. Sci. \*\*121\*\*, e2318333121 \(2024\)](#). (arXiv:2310.06833)
- B.2 X. Zhao, D. Hartich, & **A. Godec**, *Emergence of memory in equilibrium versus non-equilibrium systems*. [Phys. Rev. Lett. \*\*132\*\*, 147101 \(2024\)](#).
- B.3 M. Ibáñez, C. Dieball, A. Lasanta, **A. Godec**, & R. A. Rica, *Heating and Cooling are Fundamentally Asymmetric and Evolve Along Distinct Pathways*. [Nature Physics doi: 10.1038/s41567-023-02269-z \(2024\)](#). [Covered in [phys.org](#), [spektrum](#), and [NewScientist](#); see also [press release](#)]
- B.4 R. Bebon & **A. Godec**, *Controlling Uncertainty of Empirical First-Passage Times in the Small-Sample Regime*. [Phys. Rev. Lett. \*\*131\*\*, 237101 \(2023\)](#).
- B.5 C. Dieball, G. Wellecke, & **A. Godec**, *Asymmetric Thermal Relaxation in Driven Systems: Rotations go Opposite Ways*. [Phys. Rev. Research, \*\*5\*\*, L042030 \(2023\)](#).
- B.6 D. Hartich & **A. Godec**, *Violation of local detailed balance despite a clear time-scale separation*. [Phys. Rev. Research \*\*5\*\*, L032017 \(2023\)](#).
- B.7 C. Diebal & **A. Godec**, *Feynman-Kac theory of time-integrated functionals: Itô versus functional calculus*. [J. Phys. A: Math. Theor. \*\*56\*\*, 155002 \(2023\)](#).
- B.8 C. Diebal & **A. Godec**, *Direct Route to Thermodynamic Uncertainty Relations and Their Saturation*. [Phys. Rev. Lett. \*\*130\*\*, 087101 \(2023\)](#).
- B.9 K. Blom, N. Ziethen, D. Zwicker, & **A. Godec**, *Thermodynamically consistent phase-field theory including nearest-neighbor pair correlations*. [Phys. Rev. Research \*\*5\*\*, 013135 \(2023\)](#).
- B.10 **A. Godec** & D. E. Makarov, *Challenges in Inferring the Directionality of Active Molecular Processes from Single-Molecule Fluorescence Resonance Energy Transfer Trajectories*. [J. Phys. Chem. Lett. \*\*14\*\*, 49 \(2023\)](#).
- B.11 C. Diebal & **A. Godec**, *On correlations and fluctuations of time-averaged densities and currents with general time-dependence*. [J. Phys. A: Math. Theor. \*\*55\*\*, 475001 \(2022\)](#).
- B.12 C. Dieball & **A. Godec**, *Mathematical, Thermodynamical, and Experimental Necessity for Coarse Graining Empirical Densities and Currents in Continuous Space*. [Phys. Rev. Lett. \*\*129\*\*, 140601 \(2022\)](#). [See accompanying [press release](#).]

- B.13 C. Dieball & **A. Godec**, *Coarse Graining Empirical Densities and Currents in Continuous-Space Steady States*. [Phys. Rev. Research 4, 033243 \(2022\)](#).
- B.14 J. Li, J-F. Xie, **A. Godec**, K. R. Weninger, C. Liu, J. C. Smith, & L. Hong, *Non-ergodic internal dynamics of a globular protein observed over fourteen orders in time*. [Chem. Sci. 13, 9668 \(2022\)](#).
- B.15 C. Zunke, J. Bewerunge, F. Platten, S. Egelhaaf, & **A. Godec**, *First passage statistics of colloids on fractals: theory and experimental realization*. [Science Advances 8, eabk0627 \(2022\)](#). [Covered in [ProPhysik](#) magazine.]
- B.16 C. Dieball, D. Krapf, M. Weiss, & **A. Godec**, *Scattering fingerprints of two-state dynamics*. [New J. Phys. 24, 023004 \(2022\)](#).
- B.17 D. Hartich & **A. Godec**, *Emergent memory and kinetic hysteresis in strongly driven networks*. [Phys. Rev. X 11, 041047 \(2021\)](#).
- B.18 K. Blom & **A. Godec**, *Criticality in Cell Adhesion*. [Phys. Rev. X 11, 031067 \(2021\)](#). [See accompanying [press release](#).]
- B.19 D. Hartich & **A. Godec**, *Thermodynamic Uncertainty Relation Bounds the Extent of Anomalous Diffusion*. [Phys. Rev. Lett. 127, 080601 \(2021\)](#). [Editors' Suggestion & covered in a [Viewpoint in Physics](#)]
- B.20 A. Lapolla & **A. Godec**, *BetheSF V2: 3-point propagator and additional external potentials*. [Comp. Phys. Commun. 269, 108131 \(2021\)](#).
- B.21 A. Lapolla, M. Vossel, & **A. Godec**, *Time- and ensemble-average statistical mechanics of the Gaussian Network Model*. [J. Phys. A: Math. Theor. 54, 355601 \(2021\)](#).
- B.22 J. Li, X. Hu, T. Neusius, X. Cheng, M. D. Smith, **A. Godec**, L. Hong, R. Metzler, and J. C. Smith, *Reply to: Insufficient evidence for ageing in protein dynamics*. [Nature Phys., 17, 775 \(2021\)](#).
- B.23 A. Lapolla & **A. Godec**, *A Toolbox for Quantifying Memory in Dynamics Along Reaction Coordinates*. [Phys. Rev. Research 3, L022018 \(2021\)](#).
- B.24 A. Lapolla & **A. Godec**, *Single-file diffusion in a bi-stable potential: signatures of memory in the barrier-crossing of a tagged-particle*. [J. Chem. Phys. 153, 194104 \(2020\)](#).
- B.25 A. Lapolla & **A. Godec**, *Faster uphill relaxation in thermodynamically equidistant temperature quenches*. [Phys. Rev. Lett. 125, 110602 \(2020\)](#); see [Erratum](#) with corrected Proof of Theorem 1. [Editors' Suggestion & covered in a [Focus story in Physics](#) and a [commentary in PhysicsWorld](#). ]
- B.26 A. Lapolla, D. Hartich, & **A. Godec**, *Spectral theory of fluctuations in time-average statistical mechanics of reversible and driven systems*. [Phys. Rev. Research 2, 043084 \(2020\)](#).
- B.27 A. Lapolla & **A. Godec**, *BetheSF: Efficient computation of the exact tagged-particle propagator in single-file systems via the Bethe eigenspectrum*. [Comp. Phys. Commun. 258, 107569 \(2021\)](#).
- B.28 T. Ukmar-Godec, P. Fang, A. Ibáñez de Opakua, F. Henneberg, **A. Godec**, M.-S. Cima-Omori, A. Chari, E. Mandelkow, H. Urlaub & M. Zweckstetter, *Proteasomal degradation of the intrinsically disordered protein tau at single-residue resolution*. [Science Advances 6, eaba3916 \(2020\)](#).
- B.29 A. Lapolla and **A. Godec**, *Manifestations of projection-induced memory: general theory and the tilted single file.*, [Front. Phys. 7, 182 \(2019\)](#).
- B.30 D. Hartich and **A. Godec**, *Extreme value statistics of ergodic Markov processes from first passage times in the large deviation limit*, [J. Phys. A: Math. Theor. 52, 244001 \(2019\)](#). (Invited for a special issue 'New trends in first-passage methods and applications in the life sciences and engineering')

- B.31 D. Hartich and **A. Godec**, *Interlacing Relaxation and First-Passage Phenomena in Reversible Discrete and Continuous Space Markovian Dynamics*, [J. Stat. Mech.](#) **024002** (2019).
- B.32 D. Hartich and **A. Godec**, *Duality between relaxation and first passage in reversible Markov dynamics: rugged energy landscapes disentangled*, [New J. Phys. \(Fast Track Communication\)](#), **20**, 112002 (2018).
- B.33 A. Lapolla and **A. Godec**, *Unfolding tagged Particle Histories in Single-File Diffusion: Exact Single- and Two-Tag Local Times Beyond Large Deviation Theory*, [New J. Phys.](#) **20**, 113021 (2018).
- B.34 M. Schwarzl, **A. Godec** and R. Metzler, *Quantifying non-ergodicity of anomalous diffusion with higher order moments*, [Sci. Rep.](#), **7**, 3878 (2017).
- B.35 T. Ukmar-Godec, L. Bertineti, J. Dunlop, **A. Godec**, M. Grabiger, A. Masic, H. Nguyen, I. Zlotnikov, P. Zaslansky and D. Faivre, *Materials Nanoarchitecturing via Cation-Mediated Protein Assembly: Making Limpet Teeth without Mineral*, [Adv. Mat.](#) **29**, 1701171 (2017).
- B.36 **A. Godec** and R. Metzler, *First passage-time statistics for two-channel diffusion*, [J. Phys. A: Math. Theor.](#) **50**, 084001 (2017) ([Invited for a special issue 'Emerging talents'](#))
- B.37 **A. Godec** and R. Metzler, *Universal proximity effect in target search kinetics in the few-encounter limit*, [Phys. Rev. X](#), **6**, 041037 (2016).
- B.38 **A. Godec** and R. Metzler, *Active transport improves the precision of linear long distance molecular signalling*, [J. Phys. A: Math. Theor.](#) **49**, 364001 (2016) [[Invited for a special issue on Marian Smoluchowski's 1916 paper – a century of inspiration](#)]
- B.39 M. Schwarzl, **A. Godec**, G. Oshanin and R. Metzler, *A single predator charging a herd of prey: effects of self volume and predator-prey decision-making*, [J. Phys. A: Math. Theor.](#) **49**, 225601 (2016). (see also accompanying press release: <http://phys.org/news/2016-04-theoretical-tiger-statistical-sheep-probe.html>)
- B.40 **A. Godec** and R. Metzler, *First passage time distribution in heterogeneity controlled kinetics: going beyond the mean first passage time*, [Sci. Rep.](#) **6**, 20349 (2016).
- B.41 **A. Godec** and R. Metzler, *Signal focusing through active transport*, [Phys. Rev. E](#) **92**, 010701(R) (2015).
- B.42 H. Krüsemann, **A. Godec** and R. Metzler, *Ageing first passage time density in continuous time random walks and quenched energy landscapes*, [J. Phys. A: Math. Theor.](#) **48**, 285001 (2015). ([selected by the editorial board as highlight for IOP-select](#))
- B.43 **A. Godec** and R. Metzler, *Optimization and universality of Brownian search in a basic model of quenched heterogeneous media*, [Phys. Rev. E](#) **91**, 052134 (2015).
- B.44 **A. Godec**, A. V. Chechkin, E. Barkai, H. Kantz and R. Metzler, *Localisation and universal fluctuations in ultraslow diffusion processes*, [J. Phys. A: Math. Theor. \(FTC\)](#) **47**, 492002 (2014). ([selected as 2014 Highlight of J. Phys. A](#))
- B.45 M. Bauer, **A. Godec** and R. Metzler, *Diffusion of finite-size particles in two-dimensional channels with random wall configurations*, [Phys. Chem. Chem. Phys.](#) **16**, 6118 (2014).
- B.46 **A. Godec**, M. Bauer and R. Metzler, *Collective dynamics effect transient subdiffusion of inert tracers in flexible gel networks*, [New J. Phys. \(FTC\)](#) **16**, 092002 (2014). ([selected as New J. Phys. Highlight 2014](#))
- B.47 H. Krüsemann, **A. Godec** and R. Metzler, *First-passage statistics for aging diffusion in systems with annealed and quenched disorder*, [Phys. Rev. E](#) **89**, 040101(R) (2014).



- B.48 **A. Godec**, J. C. Smith and F. Merzel, *Soft collective fluctuations governing hydrophobic association*, Phys. Rev. Lett. **111**, 127801 (2013).
- B.49 **A. Godec** and R. Metzler, *Linear response, fluctuation-dissipation relation, and finite-system-size effects in superdiffusion*, Phys. Rev. E **88**, 012116 (2013).
- B.50 **A. Godec** and R. Metzler, *Finite-Time Effects and Ultraweak Ergodicity Breaking in Superdiffusive Dynamics*, Phys. Rev. Lett. **110**, 020603 (2013).
- B.51 **A. Godec** and F. Merzel, *Physical origin underlying the entropy loss upon hydrophobic hydration* J. Am. Chem. Soc. **134**, 17574 (2012).
- B.52 T. Ukmar, U. Maver, O. Planinšek, A. Pintar, V. Kaučič, **A. Godec** and M. Gaberšček, *Guest-host van der Waals interactions decisively affect the molecular transport in mesoporous media*, J. Mater. Chem. **22**, 1112 (2012).
- B.53 **A. Godec**, J. C. Smith and F. Merzel, *Increase of both order and disorder in the first hydration shell with increasing solute polarity*, Phys. Rev. Lett. **107**, 267801 (2011).
- B.54 A. Žnidaršič, **A. Godec** and M. Gaberšček. *pH-based one pot synthesis of biocompatible olive shaped inorganic particles*, Mater. Res. Bull. **47**, 967 (2012).
- B.55 T. Ukmar, U. Maver, O. Planinšek, A. Pintar, V. Kaučič, M. Gaberšček and **A. Godec**, *Understanding controlled drug release from mesoporous silicates: Theory and Experiment*, J. Control. Rel. **155**, 409 (2011).
- B.56 T. Ukmar, M. Gaberšček, F. Merzel and **A. Godec**, *Modus operandi of controlled release from mesoporous matrices: a theoretical perspective*, Phys. Chem. Chem. Phys. **13**, 15311 (2011).
- B.57 T. Ukmar, **A. Godec**, O. Planinšek, V. Kaučič, G. Mali and M. Gaberšček, *Phase (trans)formation and physical state of a model drug in mesoscopic confinement* Phys. Chem. Chem. Phys. **13**, 16046 (2011).
- B.58 **A. Godec**, T. Ukmar, M. Gaberšček and F. Merzel, *Inversion of pore size dependence of solute transport kinetics from increasingly attractive ordered porous matrix*, Europhys. Lett. **92**, 60011 (2010).
- B.59 U. Maver, A. Žnidaršič, D. Saboti, S. Srčič, M. Gaberšček, **A. Godec** and O. Planinšek, *The relation between the interfacial contact and SiO<sub>2</sub> coating efficiency and properties in the case of two clarithromycin polymorphs*, Coll. Surf. A: Physicochem. Eng. Aspects **371**, 119 (2010).
- B.60 **A. Godec**, M. Gaberšček, J. Jamnik, D. Janežič and F. Merzel, *Ion-size effect within the aqueous solution interface at the Pt(111) surface : molecular dynamics studies*, Phys. Chem. Chem. Phys. **12**, 13566 (2010).
- B.61 O. Planinšek, J. Zadnik, M. Kunaver, S. Srčič and **A. Godec**, *Structural evolution of indomethacin particles upon milling: time-resolved quantification and localization of disordered structure studied by IGC and DSC*, J. Pharm. Sci. **99**, 1968 (2010).
- B.62 **A. Godec**, M. Gaberšček, J. Jamnik and F. Merzel, *14. Nonlinear diffusion in two-dimensional ordered porous media based on a free volume theory*, J. Chem. Phys. **131**, 234106 (2009).
- B.63 T. Ukmar, **A. Godec**, U. Maver, O. Planinšek, M. Bele, J. Jamnik and M. Gaberšček, *Suspensions of modified TiO<sub>2</sub> nanoparticles with supreme UV filtering ability*, J. Mater. Chem. **19**, 8176 (2009).
- B.64 **A. Godec**, M. Gaberšček and J. Jamnik, *Comment on the article "A new understanding of the relationship between solubility and particle size"*, J. Sol. Chem. **38**, 135 (2009).
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