# List of publications

Raphael Wittkowski

See `https://www.uni-muenster.de/Physik.TP/~wittkowski/publications.pdf` for an update.

**ORCID:** 0000-0003-4881-9173

**Google Scholar:** `https://scholar.google.de/citations?user=ZYxh1t0AAAAJ`

**Total number of publications:** 90

**Type of publications:**

- 1× *book*
- 1× *book chapter*
- 8× *review article*
  (1× *metareview*, 4× *regular review*, 1× *perspective review*, 1× *roadmap review*, 1× *pedagogical introduction*)
- 64× *regular article*
- 1× *conference proceeding*
- 5× *preprint*
- 1× *patent application*
- 8× *software*
- 1× *other*

**High-impact journals (impact factor $\geq 9$):** 17

- 2× *Advances in Physics*
- 1× *Advanced Science*
- 1× *ACS Nano*
- 4× *Nature Communications*
- 2× *Science Advances*
- 7× *Physical Review Letters*

**Other journals (impact factor < 9):** 54

1× *AIP Advances*
1× *Annalen der Physik*
1× *Biophysical Journal*
2× *Communications Physics*
1× *Contributions to Plasma Physics*
1× *Entropy*
1× *European Journal of Physics*
1× *European Physical Journal Special Topics*
7× *Journal of Chemical Physics*
1× *Journal of Computational Electronics*
2× *Journal of Physics A: Mathematical and Theoretical*
1× *Journal of Physics Communications*
4× *Journal of Physics: Condensed Matter*
1× *Journal of Physics: Photonics*
2× *Langmuir*
1× *Modelling and Simulation in Materials Science and Engineering*
1× *Molecular Physics*
3× *Nanoscale Advances*
2× *New Journal of Physics*
1× *Physica Scripta*
2× *Physical Chemistry Chemical Physics*
13× *Physical Review E*
1× *Physical Review Research*
1× *Physics of Fluids*
1× *Scientific Reports*
1× *Soft Matter*

**Conference proceedings:** 1

1× *IEEE Visualization and Visual Analytics*

**Special publications:**

11 *publications resulted in press reports*
9 *publications selected as highlight by the editor*
9 *invited publications*

**Citations (according to Google Scholar):**

4466 *citations in total*
*h-index* 30, *i10-index* 53
Statistics:
1 *publications with more than 400 citations*
6 *publications with more than 200 citations*
12 *publications with more than 100 citations*
53 *publications with more than 10 citations*

# Contents

# 1. Book

[B1] **R. Wittkowski**,
*Brownian dynamics of active and passive anisotropic colloidal particles*,
Berichte aus der Physik (Shaker Verlag, Aachen, 2012), 198 pages.
ISBN: 978-3-8440-1368-9, DOI: 10.2370/9783844013689.

# 2. Book chapter (with peer review)

[K1] J. Jeggle and **R. Wittkowski**,
"Intelligent matter consisting of active particles",
In *Artificial Intelligence and Intelligent Matter*,
Edited by M. te Vrugt,
Machine Intelligence for Materials Science,
accepted
(Springer-Verlag, Cham, 2024).

# 3. Review articles (with peer review)

## 3.1. Metareview

[Rm1] M. te Vrugt and **R. Wittkowski**,
*A review of active matter reviews*,
preprint, arXiv:2405.15751 (2024).
Invited article.

## 3.2. Regular review

[Rr1] M. te Vrugt, J. Bickmann, and **R. Wittkowski**,
*How to derive a predictive field theory for active Brownian particles: a step-by-step tutorial*,
Journal of Physics: Condensed Matter **35**, 313001 (2023). DOI: 10.1088/1361-648X/acc440.
Invited article.

[Rr2] M. te Vrugt, H. Löwen, and **R. Wittkowski**,
*Classical dynamical density functional theory: from fundamentals to applications*,
Advances in Physics **69**, 121–247 (2020). DOI: 10.1080/00018732.2020.1854965.
Press reports: 7thSpace, Bioengineer, Brinkwire, EurekAlert!, Informationsdienst Wissenschaft, Infosurhoy, Phys.org, Science Bulletin, ScienceDaily, Sciencesprings, Scienmag, University of Düsseldorf, University of Münster.

[Rr3] H. H. Wensink, H. Löwen, M. Marechal, A. Härtel, **R. Wittkowski**, U. Zimmermann, A. Kaiser, and A. M. Menzel,
*Differently shaped hard body colloids in confinement: from passive to active particles*,
European Physical Journal Special Topics **222**, 3023–3037 (2013). DOI: 10.1140/epjst/e2013-02073-0.

[Rr4] H. Emmerich, H. Löwen, **R. Wittkowski**, T. Gruhn, G. I. Tóth, G. Tegze, and L. Gránásy,
*Phase-field-crystal models for condensed matter dynamics on atomic length and diffusive time scales: an overview*,
Advances in Physics **61**, 665–743 (2012). DOI: 10.1080/00018732.2012.737555.

## 3.3. Perspective review

[Rp1] M. te Vrugt and **R. Wittkowski**,
*Perspective: New directions in dynamical density functional theory*,
Journal of Physics: Condensed Matter **35**, 041501 (2023). DOI: 10.1088/1361-648X/ac8633.
Invited article.

## 3.4. Roadmap review

[Ro1] G. Volpe, O. M. Maragò, H. Rubinzstein-Dunlop, G. Pesce, A. B. Stilgoe, G. Volpe, G. Tkachenko, V. G. Truong, S. N. Chormaic, F. Kalantarifard, P. Elahi, M. Käll, A. Callegari, M. I. Marqués, A. A. R. Neves, W. L. Moreira, A. Fontes, C. L. Cesar, R. Saija, A. Saidi, P. Beck, J. S. Eismann, P. Banzer, T. F. D. Fernandes, F. Pedaci, W. P. Bowen, R. Vaippully, M. Lokesh, B. Roy, G. Thalhammer, M. Ritsch-Marte, L. Pérez García, A. V. Arzola, I. Pérez Castillo, A. Argun, T. M. Muenker, B. E. Vos, T. Betz, I. Cristiani, P. Minzioni, P. J. Reece, F. Wang, D. McGloin, J. C. Ndukaife, R. Quidant, R. P. Roberts, C. Laplane, T. Volz, R. Gordon, D. Hanstorp, J. Tello Marmolejo, G. D. Bruce, K. Dholakia, T. Li, O. Brzobohatý, S. H. Simpson, P. Zemánek, F. Ritort, Y. Roichman, V. Bobkova, **R. Wittkowski**, C. Denz, G. P. Kumar, A. Foti, M. Grazia Donato, P. G. Gucciardi, L. Gardini, G. Bianchi, A. Kashchuk, M. Capitanio, L. Paterson, P. H. Jones, K. Berg-Sørensen, Y. F. Barooji, L. B. Oddershede, P. Pouladian, D. Preece, C. Beck Adiels, A. C. De Luca, A. Magazzù, D. Bronte Ciriza, M. A. Iatì, and G. A. Swartzlander, Jr.,
*Roadmap for optical tweezers 2023*,
Journal of Physics: Photonics **5**, 022501 (2023). DOI: 10.1088/2515-7647/acb57b.

### 3.5. Pedagogical introduction

[Ri1] M. te Vrugt and **R. Wittkowski**,
*Projection operators in statistical mechanics: a pedagogical approach*,
European Journal of Physics **41**, 045101 (2020). DOI: 10.1088/1361-6404/ab8e28.

## 4. Regular articles (with peer review)

[A1] M. te Vrugt, L. Topp, **R. Wittkowski**, and A. Heuer,
*Microscopic derivation of the thin film equation using the Mori-Zwanzig formalism*,
Journal of Chemical Physics, in press (2024). DOI: 10.1063/5.0217535.
Special Collection "JCP Emerging Investigators 2024".

[A2] M. te Vrugt, J. Jeggle, and **R. Wittkowski**,
*Passive and active field theories for disease spreading*,
Journal of Physics A: Mathematical and Theoretical **57**, 315003 (2024). DOI: 10.1088/1751-8121/ad4c31.
Invited article. Special Issue "Fundamental Approaches towards Predictive Epidemic Modelling".

[A3] S. Bröker, M. te Vrugt, and **R. Wittkowski**,
*Collective dynamics and pair-distribution function of active Brownian ellipsoids in two spatial dimensions*,
Communications Physics **7**, 238 (2024). DOI: 10.1038/s42005-024-01674-x.

[A4] L. J. Krüger, M. te Vrugt, S. Bröker, B. Wallmeyer, T. Betz, and **R. Wittkowski**,
*Analytical method for reconstructing the stress on a spherical particle from its surface deformation*,
Biophysical Journal **123**, 527–537 (2024). DOI: 10.1016/j.bpj.2024.01.017.

[A5] S. Bröker, M. te Vrugt, J. Jeggle, J. Stenhammar, and **R. Wittkowski**,
*Pair-distribution function of active Brownian spheres in three spatial dimensions: simulation results and analytical representation*,
Soft Matter **20**, 224–244 (2024). DOI: 10.1039/D3SM00987D.

[A6] M. Evers and **R. Wittkowski**,
*An active colloidal system showing parallels to a time crystal*,
Physica Scripta **98**, 125240 (2023). DOI: 10.1088/1402-4896/ad05ab.

[A7] S. Bröker, J. Bickmann, M. te Vrugt, M. E. Cates, and **R. Wittkowski**,
*Orientation-dependent propulsion of active Brownian spheres: from self-advection to programmable cluster shapes*,
Physical Review Letters **131**, 168203 (2023). DOI: 10.1103/PhysRevLett.131.168203.
Press reports: Lenta.ru, myScience, Phys.org, ScienceDaily, University of Münster, Verve Times.

[A8] A. R. Sprenger, C. Scholz, A. Ldov, **R. Wittkowski**, and H. Löwen,
*Inertial self-propelled particles in anisotropic environments*,
Communications Physics **6**, 301 (2023). DOI: 10.1038/s42005-023-01396-6.

[A9] J. Bickmann, S. Bröker, M. te Vrugt, and **R. Wittkowski**,
*Active Brownian particles in external force fields: field-theoretical models, generalized barometric law, and programmable density patterns*,
Physical Review E **108**, 044601 (2023). DOI: 10.1103/PhysRevE.108.044601.

[A10] Y. Deng, A. Paskert, Z. Zhang, **R. Wittkowski**, and D. Ahmed,
*An acoustically controlled helical microrobot*,
Science Advances **9**, eadh526 (2023). DOI: 10.1126/sciadv.adh5260.
Featured article. Press reports: Cikavosti, Germanic.news, heise online, News Azi, Tech Xplore, Today Headline.

[A11] J. Voß and **R. Wittkowski**,
*Dependence of the acoustic propulsion of nano- and microcones on their orientation and aspect ratio*,
Scientific Reports **13**, 12858 (2023). DOI: 10.1038/s41598-023-39231-1.

[A12] M. te Vrugt, T. Frohoff-Hülsmann, E. Heifetz, U. Thiele, and **R. Wittkowski**,
*From a microscopic inertial active matter model to the Schrödinger equation*,
Nature Communications **14**, 1302 (2023). DOI: 10.1038/s41467-022-35635-1.
Featured article. Selected as Editors' Highlight for the Focus "Applied physics and mathematics". Press reports: AZoNano, EurekAlert!, Informationsdienst Wissenschaft, Innovations-Report, Nanowerk, Phys.org, Scienmag, University of Münster.

[A13] G. J. Schmitz, M. te Vrugt, T. Haug-Warberg, L. Ellingsen, P. Needham, and **R. Wittkowski**,
*Thermodynamics of an empty box*,
Entropy **25**, 315 (2023). DOI: 10.3390/e25020315.

[A14] M. te Vrugt, M. P. Holl, A. Koch, **R. Wittkowski**, and U. Thiele,
*Derivation and analysis of a phase field crystal model for a mixture of active and passive particles*,
Modelling and Simulation in Materials Science and Engineering **30**, 084001 (2022). DOI: 10.1088/1361-651X/ac856a.
Invited article. Special Issue "Focus on Phase Field Crystal Modelling in Materials Science".

[A15] J. Mayer Martins and **R. Wittkowski**,
*Inertial dynamics of an active Brownian particle*,
Physical Review E **106**, 034616 (2022). DOI: 10.1103/PhysRevE.106.034616.

[A16] J. Voß and **R. Wittkowski**,
*Acoustic propulsion of nano- and microcones: dependence on the viscosity of the surrounding fluid*,
Langmuir **38**, 10736–10748 (2022). DOI: 10.1021/acs.langmuir.2c00603.

[A17] P. A. Monderkamp, R. Wittmann, M. te Vrugt, A. Voigt, **R. Wittkowski**, and H. Löwen,
*Topological fine structure of smectic grain boundaries and tetratic disclination lines within three-dimensional smectic liquid crystals*,

Physical Chemistry Chemical Physics **24**, 15691–15704 (2022). DOI: 10.1039/D2CP00060A.
Selected for the journal cover.

[A18] T. Nitschke, J. Stenhammar, and **R. Wittkowski**,
*Collective guiding of acoustically propelled nano- and microparticles*,
Nanoscale Advances **4**, 2844–2856 (2022). DOI: 10.1039/D2NA00007E.

[A19] J. Bickmann, S. Bröker, J. Jeggle, and **R. Wittkowski**,
*Analytical approach to chiral active systems: suppressed phase separation of interacting Brownian circle swimmers*,
Journal of Chemical Physics **156**, 194904 (2022). DOI: 10.1063/5.0085122.

[A20] J. Voß and **R. Wittkowski**,
*Propulsion of bullet- and cup-shaped nano- and microparticles by traveling ultrasound waves*,
Physics of Fluids **34**, 052007 (2022). DOI: 10.1063/5.0089367.
Invited article.

[A21] J. Voß and **R. Wittkowski**,
*Orientation-dependent propulsion of triangular nano- and microparticles by a traveling ultrasound wave*,
ACS Nano **16**, 3604–3612 (2022). DOI: 10.1021/acsnano.1c02302.
Press reports: AZoNano, Bionity, ChemEurope, c't, EurekAlert!, Informationsdienst Wissenschaft, Innovations-Report, Mirage.News, Nanowerk, Phys.org, Pro-Physik.de, ScienceDaily, Scienmag, University of Münster.

[A22] S. Raghuraman, A.-S. Schubert, S. Bröker, A. Jurado, A. Müller, M. Brandt, B. E. Vos, A. D. Hofemeier, F. Abbasi, M. Stehling, **R. Wittkowski**, J. Ivaska, and T. Betz,
*Pressure drives rapid burst-like coordinated cellular motion from 3D cancer aggregates*,
Advanced Science **9**, 2104808 (2022). DOI: 10.1002/advs.202104808.

[A23] J. Voß and **R. Wittkowski**,
*Acoustically propelled nano- and microcones: fast forward and backward motion*,
Nanoscale Advances **4**, 281–293 (2022). DOI: 10.1039/D1NA00655J.

[A24] M. te Vrugt, S. Hossenfelder, and **R. Wittkowski**,
*Mori-Zwanzig formalism for general relativity: a new approach to the averaging problem*,
Physical Review Letters **127**, 231101 (2021). DOI: 10.1103/PhysRevLett.127.231101.
Press reports: Borkener Zeitung, EurekAlert!, Frankfurt Institute for Advanced Studies, Informationsdienst Wissenschaft, Innovations-Report, Münsterland Zeitung, N+1, Phys.org, Popmech, Pro-Physik.de, Sciencesprings, SciTechDaily, Space Daily, Tech Explorist, University of Münster.

[A25] M. te Vrugt, G. I. Tóth, and **R. Wittkowski**,
*Master equations for Wigner functions with spontaneous collapse and their relation to thermodynamic irreversibility*,
Journal of Computational Electronics **20**, 2209–2231 (2021). DOI: 10.1007/s10825-021-01804-6.

Invited article. Special Issue "Wigner Functions in Computational Electronics and Photonics".

[A26] M. te Vrugt, J. Jeggle, and **R. Wittkowski**,
*Jerky active matter: a phase field crystal model with translational and orientational memory*,
New Journal of Physics **23**, 063023 (2021). DOI: 10.1088/1367-2630/abfa61.

[A27] M. te Vrugt, J. Bickmann, and **R. Wittkowski**,
*Containing a pandemic: nonpharmaceutical interventions and the 'second wave'*,
Journal of Physics Communications **5**, 055008 (2021). DOI: 10.1088/2399-6528/abf79f.
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[A28] M. te Vrugt and **R. Wittkowski**,
*Orientational order parameters for arbitrary quantum systems*,
Annalen der Physik **532**, 2000266 (2020). DOI: 10.1002/andp.202000266.
Among the journal's "top 10 most downloaded papers" published in 2019 or 2020.

[A29] M. te Vrugt, J. Bickmann, and **R. Wittkowski**,
*Effects of social distancing and isolation on epidemic spreading modeled via dynamical density functional theory*,
Nature Communications **11**, 5576 (2020). DOI: 10.1038/s41467-020-19024-0.
Featured article. Selected as Editors' Highlight for the Focus "Applied physics and mathematics". Selected for a Focus in Physik Journal **20**, 6, 18-19 (2021).
Press reports: Abitur und Studium, Analytik News, Archytele, Avalanches, Bioengineer, Bioon, Bocholter-Borkener Volksblatt, DE24 News, Deutsches Ärzteblatt, Dorstener Zeitung, EurekAlert!, Healthcare Hygiene Magazine, Heilpraxisnet, Informationsdienst Wissenschaft, JuraForum, Laborpraxis, Medical Xpress, Münsterland-Zeitung, myScience, Nachedeu, NewsBeezer, NotiUlti, Osel, Pediatric Radiology, Research in Germany, Ruhr-Nachrichten, ScienceDaily, Scienmag, Stadt4.0, Tekk.tv, TheDietWorld, TodayHeadline, University of Münster, Wemp, Westfälische Nachrichten, wissen|leben, Wissen.Newzs.

[A30] J. Voß and **R. Wittkowski**,
*On the shape-dependent propulsion of nano- and microparticles by traveling ultrasound waves*,
Nanoscale Advances **2**, 3890–3899 (2020). DOI: 10.1039/D0NA00099J.
Selected for the "Nanoscale Advances HOT Article Collection".

[A31] J. Bickmann and **R. Wittkowski**,
*Collective dynamics of active Brownian particles in three spatial dimensions: a predictive field theory*,
Physical Review Research **2**, 033241 (2020). DOI: 10.1103/PhysRevResearch.2.033241.

[A32] J. Jeggle, J. Stenhammar, and **R. Wittkowski**,
*Pair-distribution function of active Brownian spheres in two spatial dimensions: simulation results and analytic representation*,
Journal of Chemical Physics **152**, 194903 (2020). DOI: 10.1063/1.5140725.

[A33] M. te Vrugt and **R. Wittkowski**,

*Relations between angular and Cartesian orientational expansions*,
AIP Advances **10**, 035106 (2020). DOI: 10.1063/1.5141367.

[A34] J. Bickmann and **R. Wittkowski**,
*Predictive local field theory for interacting active Brownian spheres in two spatial dimensions*,
Journal of Physics: Condensed Matter **32**, 214001 (2020). DOI: 10.1088/1361-648X/ab5e0e.
Invited article. Special Issue "Emerging Leaders 2019".

[A35] A. R. Sprenger, M. A. Fernandez-Rodriguez, L. Alvarez, L. Isa, **R. Wittkowski**, and H. Löwen,
*Active Brownian motion with orientation-dependent motility: theory and experiments*,
Langmuir **36**, 7066–7073 (2020). DOI: 10.1021/acs.langmuir.9b03617.
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[A36] M. te Vrugt and **R. Wittkowski**,
*Mori-Zwanzig projection operator formalism for far-from-equilibrium systems with time-dependent Hamiltonians*,
Physical Review E **99**, 062118 (2019). DOI: 10.1103/PhysRevE.99.062118.

[A37] S. Praetorius, A. Voigt, **R. Wittkowski**, and H. Löwen,
*Active crystals on a sphere*,
Physical Review E **97**, 052615 (2018). DOI: 10.1103/PhysRevE.97.052615.

[A38] C. E. Sitta, F. Smallenburg, **R. Wittkowski**, and H. Löwen,
*Liquid crystals of hard rectangles on flat and cylindrical manifolds*,
Physical Chemistry Chemical Physics **20**, 5285–5294 (2018). DOI: 10.1039/C7CP07026H.

[A39] **R. Wittkowski**, J. Stenhammar, and M. E. Cates,
*Nonequilibrium dynamics of mixtures of active and passive colloidal particles*,
New Journal of Physics **19**, 105003 (2017). DOI: 10.1088/1367-2630/aa8195.
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[A40] A. I. Campbell, **R. Wittkowski**, B. ten Hagen, H. Löwen, and S. J. Ebbens,
*Helical paths, gravitaxis, and separation phenomena for mass-anisotropic self-propelling colloids: experiment versus theory*,
Journal of Chemical Physics **147**, 084905 (2017). DOI: 10.1063/1.4998605.

[A41] C. E. Sitta, F. Smallenburg, **R. Wittkowski**, and H. Löwen,
*Hard rectangles near curved hard walls: tuning the sign of the Tolman length*,
Journal of Chemical Physics **145**, 204508 (2016). DOI: 10.1063/1.4967876.

[A42] T. Glanz, **R. Wittkowski**, and H. Löwen,
*Symmetry breaking in clogging for oppositely driven particles*,
Physical Review E **94**, 052606 (2016). DOI: 10.1103/PhysRevE.94.052606.

[A43] J. Stenhammar, **R. Wittkowski**, D. Marenduzzo, and M. E. Cates,
*Light-induced self-assembly of active rectification devices*,
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[A44] A. Tiribocchi, **R. Wittkowski**, D. Marenduzzo, and M. E. Cates,
*Active Model H: scalar active matter in a momentum-conserving fluid*,
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[A45] A. P. Solon, J. Stenhammar, **R. Wittkowski**, M. Kardar, Y. Kafri, M. E. Cates, and J. Tailleur,
*Pressure and phase equilibria in interacting active Brownian spheres*,
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[A46] B. ten Hagen, **R. Wittkowski**, D. Takagi, F. Kümmel, C. Bechinger, and H. Löwen,
*Can the self-propulsion of anisotropic microswimmers be described by using forces and torques?*,
Journal of Physics: Condensed Matter **27**, 194110 (2015). DOI: 10.1088/0953-8984/27/19/194110.

[A47] J. Stenhammar, **R. Wittkowski**, D. Marenduzzo, and M. E. Cates,
*Activity-induced phase separation and self-assembly in mixtures of active and passive particles*,
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[A48] B. ten Hagen, F. Kümmel, **R. Wittkowski**, D. Takagi, H. Löwen, and C. Bechinger,
*Gravitaxis of asymmetric self-propelled colloidal particles*,
Nature Communications **5**, 4829 (2014). DOI: 10.1038/ncomms5829.
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[A49] F. Kümmel, B. ten Hagen, **R. Wittkowski**, D. Takagi, I. Buttinoni, R. Eichhorn, G. Volpe, H. Löwen, and C. Bechinger,
*Reply to "Comment on 'Circular motion of asymmetric self-propelling particles'"*,
Physical Review Letters **113**, 029802 (2014). DOI: 10.1103/PhysRevLett.113.029802.

[A50] **R. Wittkowski**, A. Tiribocchi, J. Stenhammar, R. J. Allen, D. Marenduzzo, and M. E. Cates,
*Scalar $\phi^4$ field theory for active-particle phase separation*,
Nature Communications **5**, 4351 (2014). DOI: 10.1038/ncomms5351.

[A51] D. J. Kraft, **R. Wittkowski**, B. ten Hagen, K. V. Edmond, D. J. Pine, and H. Löwen,

*Brownian motion and the hydrodynamic friction tensor for colloidal particles of complex shape*,
Physical Review E **88**, 050301(R) (2013). DOI: 10.1103/PhysRevE.88.050301.
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[A52] M. Tarama, A. M. Menzel, B. ten Hagen, **R. Wittkowski**, T. Ohta, and H. Löwen,
*Dynamics of a deformable active particle under shear flow*,
Journal of Chemical Physics **139**, 104906 (2013). DOI: 10.1063/1.4820416.

[A53] **R. Wittkowski**, H. Löwen, and H. R. Brand,
*Microscopic approach to entropy production*,
Journal of Physics A: Mathematical and Theoretical **46**, 355003 (2013). DOI: 10.1088/1751-8113/46/35/355003.

[A54] S. Praetorius, A. Voigt, **R. Wittkowski**, and H. Löwen,
*Structure and dynamics of interfaces between two coexisting liquid-crystalline phases*,
Physical Review E **87**, 052406 (2013). DOI: 10.1103/PhysRevE.87.052406.

[A55] F. Kümmel, B. ten Hagen, **R. Wittkowski**, I. Buttinoni, R. Eichhorn, G. Volpe, H. Löwen, and C. Bechinger,
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*Extended dynamical density functional theory for colloidal mixtures with temperature gradients*,
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[A57] **R. Wittkowski** and H. Löwen,
*Self-propelled Brownian spinning top: dynamics of a biaxial swimmer at low Reynolds numbers*,
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[A58] **R. Wittkowski** and H. Löwen,
*Dynamical density functional theory for colloidal particles with arbitrary shape*,
Molecular Physics **109**, 2935–2943 (2011). DOI: 10.1080/00268976.2011.609145.

[A59] **R. Wittkowski**, H. Löwen, and H. R. Brand,
*Microscopic and macroscopic theories for the dynamics of polar liquid crystals*,
Physical Review E **84**, 041708 (2011). DOI: 10.1103/PhysRevE.84.041708.

[A60] B. ten Hagen, **R. Wittkowski**, and H. Löwen,
*Brownian dynamics of a self-propelled particle in shear flow*,
Physical Review E **84**, 031105 (2011). DOI: 10.1103/PhysRevE.84.031105.

[A61] C. V. Achim, **R. Wittkowski**, and H. Löwen,
*Stability of liquid crystalline phases in the phase-field-crystal model*,
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[A62] **R. Wittkowski**, H. Löwen, and H. R. Brand,
*Polar liquid crystals in two spatial dimensions: the bridge from microscopic to macroscopic modeling*,
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