
Publications Thomas Martin Fischer

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References

- [1] N. C. X. Stuhlmüller, F. Farrokhzad, P. Kuświk, F. Stobiecki, M. Urbaniak, S. Akhundzada, A. Ehresmann, T. M. Fischer and D. de las Heras, *Simultaneous and independent topological control of identical microparticles in non-periodic energy landscapes*, Nature Communications **14**(1), 7517 (2023), doi:10.1038/s41467-023-43390-0.
- [2] A. Ernst, A. M. E. B. Rossi and T. M. Fischer, *Adiabatic and irreversible classical discrete time crystals*, SciPost Phys. **13**, 091 (2022), doi:10.21468/SciPostPhys.13.4.091.
- [3] N. C. X. Stuhlmüller, T. M. Fischer and D. de las Heras, *Colloidal transport in twisted lattices of optical tweezers*, Phys. Rev. E **106**, 034601 (2022), doi:10.1103/PhysRevE.106.034601.
- [4] N. C. X. Stuhlmüller, T. M. Fischer and D. de las Heras, *Enhanced colloidal transport in twisted magnetic patterns*, Communications Physics **5**(1), 48 (2022), doi:10.1038/s42005-022-00824-3.
- [5] R. J. H. Hernández, T. M. Fischer and P. Tierno, *Dynamics and interactions of magnetically driven colloidal microrotors*, Applied Physics Letters **120**(8), 081601 (2022), doi:10.1063/5.0076574, <https://doi.org/10.1063/5.0076574>.
- [6] S. Barthmann and T. M. Fischer, *The geometric phase and the dry friction of sleeping tops on inclined planes*, Journal of Physics Communications **5**(8), 085003 (2021), doi:10.1088/2399-6528/ac1874.
- [7] T. Lachner, D. de las Heras and T. M. Fischer, *Braiding with magnetic octupoles*, Phys. Rev. Research **3**, 013043 (2021), doi:10.1103/PhysRevResearch.3.013043.
- [8] M. Mirzaee-Kakhki, A. Ernst, D. de las Heras, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, A. Ehresmann, D. Holzinger and T. M. Fischer, *Gauge invariant and gauge dependent aspects of topological walking colloidal bipeds*, Soft Matter **17**, 1663 (2021), doi:10.1039/D0SM01670E.
- [9] M. Mirzaee-Kakhki, A. Ernst, D. de las Heras, M. Urbaniak, F. Stobiecki, J. Gördes, M. Reginka, A. Ehresmann and T. M. Fischer, *Simultaneous polydirectional transport of colloidal bipeds*, Nature Communications **11**(1), 4670 (2020), doi:10.1038/s41467-020-18467-9.
- [10] M. Mirzaee-Kakhki, A. Ernst, D. de las Heras, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, J. Gördes, A. Ehresmann, D. Holzinger, M. Reginka *et al.*, *Colloidal trains*, Soft Matter **16**, 1594 (2020), doi:10.1039/C9SM02261A.
- [11] A. M. E. B. Rossi, J. Bugase, T. Lachner, A. Ernst, D. de las Heras and T. M. Fischer, *Hard topological versus soft geometrical magnetic particle transport*, Soft Matter **15**, 8543 (2019), doi:10.1039/C9SM01401B.
- [12] H. Massana-Cid, A. Ernst, D. de las Heras, A. Jarosz, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, A. Ehresmann, D. Holzinger and T. M. Fischer, *Edge transport at the boundary between topologically equivalent lattices*, Soft Matter **15**, 1539 (2019), doi:10.1039/C8SM02005A.

- [13] T. Fischer, *Experimentalphysik: Mechanik*, De Gruyter, ISBN 9783110602289, doi:doi:10.1515/9783110602289 (2018).
- [14] J. Loehr, D. de las Heras, A. Jarosz, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, A. Ehresmann, D. Holzinger and T. M. Fischer, *Colloidal topological insulators*, Communications Physics **1**(1), 4 (2018), doi:10.1038/s42005-017-0004-1.
- [15] A. M. E. B. Rossi, J. Bugase and T. M. Fischer, *Macroscopic Floquet topological crystalline steel and superconductor pump*, EPL (Europhysics Letters) **119**(4), 40001 (2017), doi:10.1209/0295-5075/119/40001.
- [16] N. Wilke, J. Bugase, L.-M. Treffenstädt and T. M. Fischer, *Wrinkled labyrinths in critical demixing ferrofluid*, Soft Matter **13**, 7307 (2017), doi:10.1039/C7SM01475A.
- [17] J. Loehr, D. de las Heras, M. Loenne, J. Bugase, A. Jarosz, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, A. Ehresmann, D. Holzinger *et al.*, *Lattice symmetries and the topologically protected transport of colloidal particles*, Soft Matter **13**, 5044 (2017), doi:10.1039/C7SM00983F.
- [18] V. V. Galassi, M. G. Del Popolo, T. M. Fischer and N. Wilke, *Molecular explanation for the abnormal flux of material into a hot spot in ester monolayers*, The Journal of Physical Chemistry B **121**(22), 5621 (2017), doi:10.1021/acs.jpcc.7b00949.
- [19] F. J. Maier, T. Lachner, A. Vilfan, T. O. Tasci, K. B. Neeves, D. W. M. Marr and T. M. Fischer, *Non reciprocal skewed rolling of a colloidal wheel due to induced chirality*, Soft Matter **12**, 9314 (2016), doi:10.1039/C6SM02143C.
- [20] D. de las Heras, J. Loehr, M. Loenne and T. M. Fischer, *Topologically protected colloidal transport above a square magnetic lattice*, New Journal of Physics **18**(10), 105009 (2016), doi:10.1088/1367-2630/18/10/105009.
- [21] J. Bugase, J. Berner and T. M. Fischer, *Magnetic field induced modulated phases in a ferrofluid lutidine silicone oil mixture*, Soft Matter **12**, 8521 (2016), doi:10.1039/C6SM01713D.
- [22] F. J. Maier and T. M. Fischer, *Transport on active paramagnetic colloidal networks*, The Journal of Physical Chemistry B **120**(38), 10162 (2016), doi:10.1021/acs.jpcc.6b07775.
- [23] J. Loehr, M. Loenne, A. Ernst, D. de las Heras and T. M. Fischer, *Topological protection of multiparticle dissipative transport*, Nature Communications **7**(1), 11745 (2016), doi:10.1038/ncomms11745.
- [24] J. Loehr, D. Pfeiffer, D. Schüler and T. M. Fischer, *Magnetic guidance of the magnetotactic bacterium magnetospirillum gryphiswaldense*, Soft Matter **12**, 3631 (2016), doi:10.1039/C6SM00384B.
- [25] F. J. Maier and T. M. Fischer, *Critical nucleation mesh-size of coarsening transient colloidal networks*, Soft Matter **12**, 614 (2016), doi:10.1039/C5SM01887K.
- [26] R. Alvarez-Nodarse, N. R. Quintero, F. G. Mertens, N. Casic and T. M. Fischer, *Paramagnetic colloidal ribbons in a precessing magnetic field*, Phys. Rev. E **91**, 032908 (2015), doi:10.1103/PhysRevE.91.032908.

- [27] P. Tierno, T. H. Johansen and T. M. Fischer, *Fast and rewritable colloidal assembly via field synchronized particle swapping*, Applied Physics Letters **104**(17), 174102 (2014), doi:10.1063/1.4874839, <https://doi.org/10.1063/1.4874839>.
- [28] P. Tierno and T. M. Fischer, *Excluded volume causes integer and fractional plateaus in colloidal ratchet currents*, Phys. Rev. Lett. **112**, 048302 (2014), doi:10.1103/PhysRevLett.112.048302.
- [29] J. Gewinner and T. M. Fischer, *Heterogeneous nucleation of giant bubbles from a Langmuir monolayer in a laser focus*, The Journal of Physical Chemistry B **117**(47), 14749 (2013), doi:10.1021/jp407291a, PMID: 24199988, <https://doi.org/10.1021/jp407291a>.
- [30] N. Casic, N. Quintero, R. Alvarez-Nodarse, F. G. Mertens, L. Jibuti, W. Zimmermann and T. M. Fischer, *Propulsion efficiency of a dynamic self-assembled helical ribbon*, Phys. Rev. Lett. **110**, 168302 (2013), doi:10.1103/PhysRevLett.110.168302.
- [31] A. Ray and T. M. Fischer, *Magnetic field controlled composite paramagnetic-diamagnetic colloidal phases*, The Journal of Physical Chemistry B **116**(28), 8233 (2012), doi:10.1021/jp212222z, PMID: 22721006, <https://doi.org/10.1021/jp212222z>.
- [32] U. Langer, A. Ray, S. Aliaskarisohi and T. M. Fischer, *Elastic properties of nanoparticle monolayer foams*, The Journal of Physical Chemistry B **116**(22), 6439 (2012), doi:10.1021/jp301278j, PMID: 22578010, <https://doi.org/10.1021/jp301278j>.
- [33] Ray, A. and Fischer, Th. M., *The transition strength from solid to liquid colloidal dipolar clusters in precessing magnetic fields*, Eur. Phys. J. E **35**(3), 17 (2012), doi:10.1140/epje/i2012-12017-x.
- [34] T. Gehring and T. M. Fischer, *Diffusion of nanoparticles at an air/water interface is not invariant under a reversal of the particle charge*, The Journal of Physical Chemistry C **115**(48), 23677 (2011), doi:10.1021/jp2061738, <https://doi.org/10.1021/jp2061738>.
- [35] S. Aliaskarisohi, T. M. Fischer and N. Wilke, *Dilatational yielding of solid Langmuir monolayers*, The Journal of Physical Chemistry B **115**(40), 11631 (2011), doi:10.1021/jp207173j, PMID: 21875105, <https://doi.org/10.1021/jp207173j>.
- [36] Z. Khattari, U. Langer, S. Aliaskarisohi and T. M. Fischer, *Optical tweezers study of Langmuir monolayer line tension: effects of protein and soluble surfactant*, Can. J. Appl. Sci **5**(3), 1603 (2011), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.442.1529&rep=rep1&type=pdf>.
- [37] A. Maestro, L. J. Bonales, H. Ritacco, T. M. Fischer, R. G. Rubio and F. Ortega, *Surface rheology: macro- and microrheology of poly(tert-butyl acrylate) monolayers*, Soft Matter **7**, 7761 (2011), doi:10.1039/C1SM05225J.
- [38] C. Jungnickel, Z. Khattari, T. H. Johansen and T. M. Fischer, *Field-controlled randomness of colloidal paths on a magnetic bubble lattice*, New Journal of Physics **13**(4), 043014 (2011), doi:10.1088/1367-2630/13/4/043014.
- [39] S. Aliaskarisohi, T. H. Johansen and T. M. Fischer, *Using symmetry breaking for directed transport of paramagnetic colloids on garnet films*, The Journal of Physical Chemistry B **115**(10), 2243 (2011), doi:10.1021/jp1118585, PMID: 21338130, <https://doi.org/10.1021/jp1118585>.

- [40] A. Ray, S. Aliaskarisohe and T. M. Fischer, *Dynamics of self-assembly of flower-shaped magnetic colloidal clusters*, Phys. Rev. E **82**, 031406 (2010), doi:10.1103/PhysRevE.82.031406.
- [41] S. Schreiber, T. Fischer and W. Zimmermann, *Hydrodynamic attraction and repulsion between asymmetric rotors*, New Journal of Physics **12**(7), 073017 (2010), doi:10.1088/1367-2630/12/7/073017.
- [42] S. Aliaskarisohe, P. Tierno, P. Dhar, Z. Khattari, M. Blaszczyński and T. M. Fischer, *On the diffusion of circular domains on a spherical vesicle*, Journal of Fluid Mechanics **654**, 417–451 (2010), doi:10.1017/S0022112010000650.
- [43] N. Casic, S. Schreiber, P. Tierno, W. Zimmermann and T. M. Fischer, *Friction-controlled bending solitons as folding pathway toward colloidal clusters*, EPL (Europhysics Letters) **90**(5), 58001 (2010), doi:10.1209/0295-5075/90/58001.
- [44] D. Murakami, U. Langer, Z. Khattari and T. M. Fischer, *Fluorinated Langmuir monolayers are more viscous than non-fluorinated monolayers*, The Journal of Physical Chemistry B **114**(16), 5376 (2010), doi:10.1021/jp100629p, PMID: 20373785, <https://doi.org/10.1021/jp100629p>.
- [45] P. Dhar, Y. Cao, T. M. Fischer and J. A. Zasadzinski, *Active interfacial shear microrheology of aging protein films*, Phys. Rev. Lett. **104**, 016001 (2010), doi:10.1103/PhysRevLett.104.016001.
- [46] P. Tierno, F. Sagués, T. H. Johansen and T. M. Fischer, *Colloidal transport on magnetic garnet films*, Phys. Chem. Chem. Phys. **11**, 9615 (2009), doi:10.1039/B910427E.
- [47] J. Liendo, M. Bernal, A. González, D. Caussyn, N. Fletcher, O. Momotyuk, R. Muruganathan, B. Roeder, I. Wiedenhöver, T. Fischer, K. Kemper, P. Barber *et al.*, *Multi-elemental characterization of organic liquid samples by use of a 13MeV $6Li_3^+$ beam*, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **267**(20), 3424 (2009), doi:<https://doi.org/10.1016/j.nimb.2009.07.024>.
- [48] Z. Khattari and T. Fischer, *Interfacial Rheology, Probing mechanical properties of Langmuir monolayers with optical tweezers*, CRC press (2009).
- [49] T. M. Fischer and P. Dhar, *Comment on “osmotic propulsion: The osmotic motor”*, Phys. Rev. Lett. **102**, 159801 (2009), doi:10.1103/PhysRevLett.102.159801.
- [50] P. Tierno, S. Schreiber, W. Zimmermann and T. M. Fischer, *Shape discrimination with hexapole-dipole interactions in magic angle spinning colloidal magnetic resonance*, Journal of the American Chemical Society **131**(15), 5366 (2009), doi:10.1021/ja808888g, PMID: 19331409, <https://doi.org/10.1021/ja808888g>.
- [51] Y. Peng, W. Chen, T. M. Fischer, D. A. Weitz and P. Tong, *Short-time self-diffusion of nearly hard spheres at an oil–water interface*, Journal of Fluid Mechanics **618**, 243–261 (2009), doi:10.1017/S0022112008004114.
- [52] P. Dhar, V. Prasad, E. R. Weeks, T. Bohlein and T. M. Fischer, *Immersion of charged nanoparticles in a salt solution/air interface*, The Journal of Physical Chemistry B **112**(32), 9565 (2008), doi:10.1021/jp805042j, PMID: 18642951, <https://doi.org/10.1021/jp805042j>.

- [53] L. E. Helseth, T. H. Johansen and T. M. Fischer, *Manipulation of paramagnetic particles using a nanoscale asymmetric magnetic potential*, Applied Physics Letters **93**(4), 042516 (2008), doi:10.1063/1.2967729, <https://doi.org/10.1063/1.2967729>.
- [54] A. Soba, P. Tierno, T. M. Fischer and F. Saguès, *Dynamics of a paramagnetic colloidal particle driven on a magnetic-bubble lattice*, Phys. Rev. E **77**, 060401 (2008), doi:10.1103/PhysRevE.77.060401.
- [55] P. Tierno, T. M. Fischer, T. H. Johansen and F. Saguès, *Colloidal assembly on magnetically vibrated stripes*, Phys. Rev. Lett. **100**, 148304 (2008), doi:10.1103/PhysRevLett.100.148304.
- [56] P. Tierno, S. V. Reddy, M. G. Roper, T. H. Johansen and T. M. Fischer, *Transport and separation of biomolecular cargo on paramagnetic colloidal particles in a magnetic ratchet*, The Journal of Physical Chemistry B **112**(12), 3833 (2008), doi:10.1021/jp710596r, PMID: 18318526, <https://doi.org/10.1021/jp710596r>.
- [57] J. Liendo, A. González, D. Caussyn, N. Fletcher, O. Momotyuk, R. Muruganathan, B. Roeder, I. Wiedenhofer, T. Fischer, K. Kemper, P. Barber and L. Sajo-Bohus, *Formvar characterization by use of forward elastic scattering*, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **266**(2), 323 (2008), doi:<https://doi.org/10.1016/j.nimb.2007.11.011>.
- [58] P. Tierno, S. V. Reddy, J. Yuan, T. H. Johansen and T. M. Fischer, *Transport of loaded and unloaded microcarriers in a colloidal magnetic shift register*, The Journal of Physical Chemistry B **111**(48), 13479 (2007), doi:10.1021/jp0755589, PMID: 17997543, <https://doi.org/10.1021/jp0755589>.
- [59] P. Dhar, P. Tierno, J. Hare, T. H. Johansen and T. M. Fischer, *Curvature driven transport of mouse macrophages in a pulsating magnetic garnet film ratchet*, The Journal of Physical Chemistry B **111**(45), 13097 (2007), doi:10.1021/jp0764485, PMID: 17949079, <https://doi.org/10.1021/jp0764485>.
- [60] P. Tierno, T. H. Johansen and T. M. Fischer, *Localized and delocalized motion of colloidal particles on a magnetic bubble lattice*, Phys. Rev. Lett. **99**, 038303 (2007), doi:10.1103/PhysRevLett.99.038303.
- [61] P. Tierno, S. V. Reddy, T. H. Johansen and T. M. Fischer, *Rupture and healing of one-dimensional chains in a parametric magnetic ratchet potential*, Phys. Rev. E **75**, 041404 (2007), doi:10.1103/PhysRevE.75.041404.
- [62] P. Dhar, C. D. Swayne, T. M. Fischer, T. Kline and A. Sen, *Orientations of overdamped magnetic nanorod-gyroscopes*, Nano Letters **7**(4), 1010 (2007), doi:10.1021/nl0701556, PMID: 17378617, <https://doi.org/10.1021/nl0701556>.
- [63] P. Tierno, T. H. Johansen and T. M. Fischer, *Magnetically driven colloidal microstirrer*, The Journal of Physical Chemistry B **111**(12), 3077 (2007), doi:10.1021/jp070579o, PMID: 17388457, <https://doi.org/10.1021/jp070579o>.
- [64] J. Yuan and T. M. Fischer, *Modulated pattern formation of phospholipid monolayers on curved surfaces*, Langmuir **23**(7), 3603 (2007), doi:10.1021/la062688k, PMID: 17311429, <https://doi.org/10.1021/la062688k>.

- [65] P. Dhar, Y. Cao, T. Kline, P. Pal, C. Swayne, T. M. Fischer, B. Miller, T. E. Mallouk, A. Sen and T. H. Johansen, *Autonomously moving local nanoprobe in heterogeneous magnetic fields*, The Journal of Physical Chemistry C **111**(9), 3607 (2007), doi:10.1021/jp067304d, <https://doi.org/10.1021/jp067304d>.
- [66] P. Tierno, R. Muruganathan and T. M. Fischer, *Viscoelasticity of dynamically self-assembled paramagnetic colloidal clusters*, Phys. Rev. Lett. **98**, 028301 (2007), doi:10.1103/PhysRevLett.98.028301.
- [67] R. M. Muruganathan and T. M. Fischer, *Flow-controlled phase boundaries in Langmuir monolayers*, The Journal of Physical Chemistry B **110**(46), 22979 (2006), doi:10.1021/jp065700q, PMID: 17107131, <https://doi.org/10.1021/jp065700q>.
- [68] R. Muruganathan and T. M. Fischer, *Laser-induced local collapse in a Langmuir monolayer*, The Journal of Physical Chemistry B **110**(44), 22160 (2006), doi:10.1021/jp0506991, PMID: 17078652, <https://doi.org/10.1021/jp0506991>.
- [69] T. M. Fischer, P. Dhar and P. Heinig, *The viscous drag of spheres and filaments moving in membranes or monolayers*, Journal of Fluid Mechanics **558**, 451–475 (2006), doi:10.1017/S002211200600022X.
- [70] L. E. Helseth, H. Z. Wen and T. M. Fischer, *Colloidal optomagnetic dimmer*, Langmuir **22**(8), 3941 (2006), doi:10.1021/la0530900, PMID: 16584279, <https://doi.org/10.1021/la0530900>.
- [71] R. Muruganathan, Y. Zhang and T. M. Fischer, *Interfacial thermocapillary vortical flow for microfluidic mixing*, Journal of the American Chemical Society **128**(11), 3474 (2006), doi:10.1021/ja0566883, PMID: 16536493, <https://doi.org/10.1021/ja0566883>.
- [72] L. E. Helseth, H. Z. Wen and T. M. Fischer, *Particle diffusion in a field-guided microfluidic channel*, Journal of Applied Physics **99**(2), 024909 (2006), doi:10.1063/1.2163981, <https://doi.org/10.1063/1.2163981>.
- [73] P. Dhar, T. M. Fischer, Y. Wang, T. E. Mallouk, W. F. Paxton and A. Sen, *Autonomously moving nanorods at a viscous interface*, Nano Letters **6**(1), 66 (2006), doi:10.1021/nl052027s, PMID: 16402789, <https://doi.org/10.1021/nl052027s>.
- [74] R. Muruganathan, Z. Khattari and T. M. Fischer, *Nonequilibrium bubbles in a flowing Langmuir monolayer*, The Journal of Physical Chemistry B **109**(46), 21772 (2005), doi:10.1021/jp0537714, PMID: 16853828, <https://doi.org/10.1021/jp0537714>.
- [75] L. E. Helseth, T. Backus, T. H. Johansen and T. M. Fischer, *Colloidal crystallization and transport in stripes and mazes*, Langmuir **21**(16), 7518 (2005), doi:10.1021/la050827c, PMID: 16042488, <https://doi.org/10.1021/la050827c>.
- [76] L. E. Helseth, R. Muruganathan, Y. Zhang and T. M. Fischer, *Colloidal rings in a liquid mixture*, Langmuir **21**(16), 7271 (2005), doi:10.1021/la050247f, PMID: 16042452, <https://doi.org/10.1021/la050247f>.
- [77] L. E. Helseth, T. H. Johansen and T. M. Fischer, *Monolayer to bilayer transition in a dipolar system*, Phys. Rev. E **71**, 062402 (2005), doi:10.1103/PhysRevE.71.062402.

- [78] L. E. Helseth and T. M. Fischer, *Physical mechanisms of rehydration in poly-podium polypodioides, a resurrection plant*, Phys. Rev. E **71**, 061903 (2005), doi:10.1103/PhysRevE.71.061903.
- [79] Y. Zhang and T. M. Fischer, *Fold-speed control in collapsing mixed phospholipid monolayers*, The Journal of Physical Chemistry B **109**(8), 3442 (2005), doi:10.1021/jp047364o, PMID: 16851377, <https://doi.org/10.1021/jp047364o>.
- [80] Z. Khattari, Y. Ruschel, H. Z. Wen, A. Fischer and T. M. Fischer, *Compactification of a myelin mimetic Langmuir monolayer upon adsorption and unfolding of myelin basic protein*, The Journal of Physical Chemistry B **109**(8), 3402 (2005), doi:10.1021/jp045493z, PMID: 16851371, <https://doi.org/10.1021/jp045493z>.
- [81] E. Hatta and T. M. Fischer, *String defects connecting pairs of half-integer disclinations and tilting transition of a Langmuir monolayer*, The Journal of Physical Chemistry B **109**(7), 2801 (2005), doi:10.1021/jp046298n, PMID: 16851290, <https://doi.org/10.1021/jp046298n>.
- [82] P. Heinig, L. E. Helseth and T. M. Fischer, *Relaxation of patterns in 2d modulated phases*, New Journal of Physics **6**, 189 (2004), doi:10.1088/1367-2630/6/1/189.
- [83] L. E. Helseth, H. Z. Wen and T. M. Fischer, *Micromanipulation of colloidal structures at interfaces using magnetic tweezers*, In K. Dholakia and G. C. Spalding, eds., *Optical Trapping and Optical Micromanipulation*, vol. 5514, pp. 475 – 486. International Society for Optics and Photonics, SPIE, doi:10.1117/12.555413 (2004).
- [84] H. Z. Wen, L. E. Helseth and T. M. Fischer, *Conformational changes of magnetic dipolar chains at a one-dimensional interface*, The Journal of Physical Chemistry B **108**(41), 16261 (2004), doi:10.1021/jp047635v, <https://doi.org/10.1021/jp047635v>.
- [85] L. E. Helseth, T. M. Fischer, R. W. Hansen and T. H. Johansen, *Microscopic magnetic squeezer*, Applied Physics Letters **85**(13), 2556 (2004), doi:10.1063/1.1795977, <https://doi.org/10.1063/1.1795977>.
- [86] L. E. Helseth and T. M. Fischer, *Pressure versus length isotherms of homogenous and mixed one-dimensional dipolar monolayers*, Langmuir **20**(19), 8192 (2004), doi:10.1021/la048949c, PMID: 15350091, <https://doi.org/10.1021/la048949c>.
- [87] Z. Khattari and T. M. Fischer, *Growth of tilted domains in an octadecanol Langmuir monolayer using radial temperature gradients*, The Journal of Physical Chemistry B **108**(36), 13696 (2004), doi:10.1021/jp049445q, <https://doi.org/10.1021/jp049445q>.
- [88] P. Heinig, S. Wurlitzer and T. M. Fischer, *Spreading dynamics of 2d dipolar Langmuir monolayer phases*, The European Physical Journal E **14**(3), 293 (2004), doi:10.1140/epje/i2004-10016-2.
- [89] L. E. Helseth, H. Z. Wen, R. W. Hansen, T. H. Johansen, P. Heinig and T. M. Fischer, *Assembling and manipulating two-dimensional colloidal crystals with movable nanomagnets*, Langmuir **20**(17), 7323 (2004), doi:10.1021/la049062j, PMID: 15301522, <https://doi.org/10.1021/la049062j>.
- [90] L. E. Helseth, H. Z. Wen, P. Heinig and T. M. Fischer, *Magnetic beads as interfacial nanoprobess*, Langmuir **20**(16), 6556 (2004), doi:10.1021/la049802o, PMID: 15274554, <https://doi.org/10.1021/la049802o>.

- [91] L. Helseth and T. Fischer, *Cooperative microlenses*, Opt. Express **12**(15), 3428 (2004), doi:10.1364/OPEX.12.003428.
- [92] L. E. Helseth, H. Z. Wen, T. M. Fischer and T. H. Johansen, *Manipulating magnetic particles using domain walls*, In T. H. Johansen and D. V. Shantsev, eds., *Magneto-Optical Imaging*, pp. 283–286. Springer Netherlands, Dordrecht, ISBN 978-94-007-1007-8 (2004).
- [93] L. Helseth, T. Fischer and T. Johansen, *Magnetic structuring and transport of colloids at interfaces*, Journal of Magnetism and Magnetic Materials **277**(3), 245 (2004), doi:https://doi.org/10.1016/j.jmmm.2003.11.006.
- [94] L. Helseth and T. Fischer, *Fundamental limits of optical microrheology*, Journal of Colloid and Interface Science **275**(1), 322 (2004), doi:https://doi.org/10.1016/j.jcis.2004.01.052.
- [95] T. M. Fischer, *Comment on “shear viscosity of Langmuir monolayers in the low-density limit”*, Phys. Rev. Lett. **92**, 139603 (2004), doi:10.1103/PhysRevLett.92.139603.
- [96] T. M. Fischer and M. Lösche, *Pattern Formation in Langmuir Monolayers Due to Long-Range Electrostatic Interactions*, pp. 383–394, Springer Berlin Heidelberg, Berlin, Heidelberg, ISBN 978-3-540-40024-0, doi:10.1007/978-3-540-40024-0_10 (2004).
- [97] T. M. Fischer, *The drag on needles moving in a Langmuir monolayer*, Journal of Fluid Mechanics **498**, 123–137 (2004), doi:10.1017/S0022112003006608.
- [98] L. E. Helseth and T. M. Fischer, *Crystallization and chain formation in liquid drops*, Phys. Rev. E **68**, 051403 (2003), doi:10.1103/PhysRevE.68.051403.
- [99] L. E. Helseth, T. M. Fischer and T. H. Johansen, *Domain wall tip for manipulation of magnetic particles*, Phys. Rev. Lett. **91**, 208302 (2003), doi:10.1103/PhysRevLett.91.208302.
- [100] L. E. Helseth and T. M. Fischer, *Particle interactions near the contact line in liquid drops*, Phys. Rev. E **68**, 042601 (2003), doi:10.1103/PhysRevE.68.042601.
- [101] L. E. Helseth, H. Z. Wen, T. M. Fischer and T. H. Johansen, *Adsorption and diffusion in a one-dimensional potential well*, Phys. Rev. E **68**, 011402 (2003), doi:10.1103/PhysRevE.68.011402.
- [102] E. Hatta and T. M. Fischer, *Splitting of an $s = 1$ point disclination into half-integer disclinations upon laser heating of a Langmuir monolayer*, The Journal of Physical Chemistry B **107**(26), 6406 (2003), doi:10.1021/jp0275701, https://doi.org/10.1021/jp0275701.
- [103] L. E. Helseth, T. M. Fischer and T. H. Johansen, *Paramagnetic beads surfing on domain walls*, Phys. Rev. E **67**, 042401 (2003), doi:10.1103/PhysRevE.67.042401.
- [104] P. Heinig, S. Wurlitzer, T. John and T. M. Fischer, *Stability criteria for two-dimensional wetting in monolayers*, The Journal of Physical Chemistry B **106**(46), 11951 (2002), doi:10.1021/jp0255177, https://doi.org/10.1021/jp0255177.

- [105] E. Hatta and T. M. Fischer, *Liquid crystalline and solid stripe textures in Langmuir monolayers*, *Langmuir* **18**(16), 6201 (2002), doi:10.1021/la025571e, <https://doi.org/10.1021/la025571e>.
- [106] S. Wurlitzer, T. M. Fischer and H. Schmiedel, *Equilibrium size of circular domains in Langmuir monolayers*, *The Journal of Chemical Physics* **116**(24), 10877 (2002), doi:10.1063/1.1480856, <https://doi.org/10.1063/1.1480856>.
- [107] S. Wurlitzer, H. Schmiedel and T. M. Fischer, *Electrophoretic relaxation dynamics of domains in Langmuir monolayers*, *Langmuir* **18**(11), 4393 (2002), doi:10.1021/la015747x, <https://doi.org/10.1021/la015747x>.
- [108] Z. Khattari, P. Steffen and T. M. Fischer, *Migration of a droplet in a liquid: effect of insoluble surfactants and thermal gradient*, *Journal of Physics: Condensed Matter* **14**(19), 4823 (2002), doi:10.1088/0953-8984/14/19/309.
- [109] Z. Khattari, E. Hatta, P. Heinig, P. Steffen, T. M. Fischer and R. Bruinsma, *Cavitation of Langmuir monolayers*, *Phys. Rev. E* **65**, 041603 (2002), doi:10.1103/PhysRevE.65.041603.
- [110] Z. Khattari, P. Heinig, S. Wurlitzer, P. Steffen, M. Lösche and T. M. Fischer, *Wetting in asymmetric quasi-2d systems*, *Langmuir* **18**(6), 2273 (2002), doi:10.1021/la011520q, <https://doi.org/10.1021/la011520q>.
- [111] Z. Khattari and T. M. Fischer, *Shapes of Langmuir monolayer domains in confined geometries*, *The Journal of Physical Chemistry B* **106**(7), 1677 (2002), doi:10.1021/jp0121419, <https://doi.org/10.1021/jp0121419>.
- [112] E. Hatta and T. M. Fischer, *Modulation crack growth and crack coalescence upon Langmuir monolayer collapse*, *The Journal of Physical Chemistry B* **106**(3), 589 (2002), doi:10.1021/jp0116510, <https://doi.org/10.1021/jp0116510>.
- [113] Z. Khattari, E. Hatta, D. G. Kurth and T. M. Fischer, *Cavitation in two-dimensional metallo-supramolecular coordination polyelectrolyte amphiphile complexes*, *The Journal of Chemical Physics* **115**(21), 9923 (2001), doi:10.1063/1.1416508, <https://doi.org/10.1063/1.1416508>.
- [114] P. Heinig, P. Steffen, S. Wurlitzer and T. M. Fischer, *Two-dimensional pendant droplet tensiometry in a Langmuir monolayer*, *Langmuir* **17**(21), 6633 (2001), doi:10.1021/la010874e, <https://doi.org/10.1021/la010874e>.
- [115] P. Steffen, S. Wurlitzer and T. M. Fischer, *Hydrodynamics of shape relaxation in viscous Langmuir monolayer domains*, *The Journal of Physical Chemistry A* **105**(36), 8281 (2001), doi:10.1021/jp011787y, <https://doi.org/10.1021/jp011787y>.
- [116] P. Steffen, P. Heinig, S. Wurlitzer, Z. Khattari and T. M. Fischer, *The translational and rotational drag on Langmuir monolayer domains*, *The Journal of Chemical Physics* **115**(2), 994 (2001), doi:10.1063/1.1378017, <https://doi.org/10.1063/1.1378017>.
- [117] S. Wurlitzer, C. Lautz, M. Liley, C. Duschl and T. M. Fischer, *Micromanipulation of Langmuir-monolayers with optical tweezers*, *The Journal of Physical Chemistry B* **105**(1), 182 (2001), doi:10.1021/jp0024266, <https://doi.org/10.1021/jp0024266>.

- [118] P. Heinig, S. Wurlitzer, P. Steffen, F. Kremer and T. M. Fischer, *Local surface potentials in the three-phase coexistence region of a Langmuir monolayer*, *Langmuir* **16**(26), 10254 (2000), doi:10.1021/la000790q, <https://doi.org/10.1021/la000790q>.
- [119] S. Wurlitzer, P. Steffen, M. Wurlitzer, Z. Khattari and T. M. Fischer, *Line tension in Langmuir monolayers probed by point forces*, *The Journal of Chemical Physics* **113**(9), 3822 (2000), doi:10.1063/1.1287907, <https://doi.org/10.1063/1.1287907>.
- [120] S. Wurlitzer, P. Steffen and T. M. Fischer, *Line tension of Langmuir monolayer phase boundaries determined with optical tweezers*, *The Journal of Chemical Physics* **112**(13), 5915 (2000), doi:10.1063/1.481164, <https://doi.org/10.1063/1.481164>.
- [121] A. Skupin, H. Skupin, T. M. Fischer, F. Kremer, E. Gebhard and R. Zentel, *Liquid crystalline polymers under uniaxial mechanical stress as observed with modulated waveguide spectroscopy*, *Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals* **331**(1), 135 (1999), doi:10.1080/10587259908047510, <https://doi.org/10.1080/10587259908047510>.
- [122] U.-C. Boehnke, T. Remmler, H. Motschmann, S. Wurlitzer, J. Hauwede and T. Fischer, *Partial air wetting on solvophobic surfaces in polar liquids*, *Journal of Colloid and Interface Science* **211**(2), 243 (1999), doi:<https://doi.org/10.1006/jcis.1998.5987>.
- [123] C. Lautz and T. M. Fischer, *Quantitative Brewster angle microscopy measurements of chiral symmetry breaking and chiral boundaries in fatty acid Langmuir monolayers*, *The European Physical Journal B - Condensed Matter and Complex Systems* **7**(2), 263 (1999), doi:10.1007/s100510050612.
- [124] T. M. Fischer, *Der Langmuir-Monolayer, ein quasi zweidimensionales System im thermodynamischen Gleichgewicht und Nichtgleichgewicht*, Habilitation thesis (1998).
- [125] A. Fahrwald, N. Klöpper, S. Ito, F. Kremer and T. M. Fischer, *Dynamical director profile analysis of ferroelectric liquid crystals using modulated waveguide spectroscopy*, *Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals* **325**(1), 173 (1998), doi:10.1080/10587259808025393, <https://doi.org/10.1080/10587259808025393>.
- [126] R. Stannarius, N. Klöpper, T. Fischer and F. Kremer, *Comment on "kink switching in ferroelectric free-standing films with high spontaneous polarization"*, *Phys. Rev. E* **58**, 6884 (1998), doi:10.1103/PhysRevE.58.6884.
- [127] A. Fahrwald, H. Skupin, T. M. Fischer and F. Kremer, *Mechanical modulated waveguide spectroscopy*, *Review of Scientific Instruments* **69**(8), 2999 (1998), doi:10.1063/1.1149046, <https://doi.org/10.1063/1.1149046>.
- [128] M. Mitsuishi, S. Ito, M. Yamamoto, H. Endo, S. Hachiya, T. Fischer and W. Knoll, *Optical characterization of a ferroelectric liquid crystalline polymer studied by time-resolved optical waveguide spectroscopy*, *Macromolecules* **31**(5), 1565 (1998), doi:10.1021/ma971433y, <https://doi.org/10.1021/ma971433y>.

- [129] J. G. Meier, J. Stumpe, B. Fischer, C. Thieme, T. M. Fischer, F. Kremer, T. Öge and R. Zentel, *Optical suppression of ferroelectricity in polysiloxane copolymers with chiral and photochromic side groups*, *Polymers for Advanced Technologies* **9**(10-11), 665 (1998), doi:[https://doi.org/10.1002/\(SICI\)1099-1581\(199810\)9:10/11<665::AID-PAT839>3.0.CO;2-W](https://doi.org/10.1002/(SICI)1099-1581(199810)9:10/11<665::AID-PAT839>3.0.CO;2-W), [https://doi.org/10.1002/\(SICI\)1099-1581\(199810\)9:10/11<665::AID-PAT839>3.0.CO;2-W](https://doi.org/10.1002/(SICI)1099-1581(199810)9:10/11<665::AID-PAT839>3.0.CO;2-W).
- [130] M. Liley, D. Gourdon, D. Stamou, U. Meseth, T. M. Fischer, C. Lautz, H. Stahlberg, H. Vogel, N. A. Burnham and C. Duschl, *Friction anisotropy and asymmetry of a compliant monolayer induced by a small molecular tilt*, *Science* **280**(5361), 273 (1998), doi:[10.1126/science.280.5361.273](https://doi.org/10.1126/science.280.5361.273), <https://www.science.org/doi/10.1126/science.280.5361.273>.
- [131] C. Lautz and T. Fischer, *Brewster angle autocorrelation spectroscopy a new method for precise determination of the tilt angle of amphiphiles in Langmuir monolayers*, *Materials Science and Engineering: C* **5**(3), 271 (1998), doi:[https://doi.org/10.1016/S0928-4931\(97\)00059-3](https://doi.org/10.1016/S0928-4931(97)00059-3).
- [132] M. Mitsuishi, S. Ito, M. Yamamoto, T. Fischer and W. Knoll, *Dynamics of the reorientation of a ferroelectric liquid crystal under an electric field studied by time-resolved optical waveguide spectroscopy*, *Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals* **308**(1), 001 (1997), doi:[10.1080/10587259708045092](https://doi.org/10.1080/10587259708045092), <https://doi.org/10.1080/10587259708045092>.
- [133] M. Mitsuishi, S. Ito, M. Yamamoto, T. Fischer and W. Knoll, *Optical switching of a metal-clad waveguide with a ferroelectric liquid crystal*, *Appl. Opt.* **36**(35), 9225 (1997), doi:[10.1364/AO.36.009225](https://doi.org/10.1364/AO.36.009225).
- [134] C. Lautz and T. M. Fischer, *Determination of the tilt angle of Langmuir monolayers with Brewster angle autocorrelation spectroscopy and quantitative image analysis in Brewster angle microscopy: A comparison between two different methods*, *Japanese Journal of Applied Physics* **36**(Part 1, No. 9A), 5703 (1997), doi:[10.1143/jjap.36.5703](https://doi.org/10.1143/jjap.36.5703).
- [135] C. Lautz and T. M. Fischer, *Discontinuities in the tilt angle of octadecanol Langmuir monolayers as observed with Brewster angle autocorrelation spectroscopy*, *The Journal of Physical Chemistry B* **101**(43), 8790 (1997), doi:[10.1021/jp9700701](https://doi.org/10.1021/jp9700701), <https://doi.org/10.1021/jp9700701>.
- [136] M. Mitsuishi, S. Ito, M. Yamamoto, T. Fischer and W. Knoll, *Time-resolved optical waveguide study of the reorientation in a nematic liquid crystal under applied electric field*, *Journal of Applied Physics* **81**(3), 1135 (1997), doi:[10.1063/1.363859](https://doi.org/10.1063/1.363859), <https://doi.org/10.1063/1.363859>.
- [137] E. Teer, C. M. Knobler, C. Lautz, S. Wurlitzer, J. Kildae and T. M. Fischer, *Optical measurements of the phase diagrams of Langmuir monolayers of fatty acid, ester, and alcohol mixtures by Brewster-angle microscopy*, *The Journal of Chemical Physics* **106**(5), 1913 (1997), doi:[10.1063/1.473312](https://doi.org/10.1063/1.473312), <https://doi.org/10.1063/1.473312>.
- [138] C. Lautz, T. M. Fischer and J. Kildea, *Hysteresis effects at the tilted to non-tilted transition in octadecanol monolayers as observed with Brewster angle autocorrelation spectroscopy*, *The Journal of Chemical Physics* **106**(17), 7448 (1997), doi:[10.1063/1.473704](https://doi.org/10.1063/1.473704), <https://doi.org/10.1063/1.473704>.

- [139] B. Fischer, C. Thieme, T. M. Fischer, F. Kremer, T. Oge and R. Zentel, *The packing of azobenzene dye moieties and mesogens in polysiloxane copolymers and its impact on the opto-dielectric effect*, *Liquid Crystals* **22**(1), 65 (1997), doi:10.1080/026782997209694, <https://doi.org/10.1080/026782997209694>.
- [140] Norbert Klöpffer, Friedrich Kremer and Thomas M. Fischer, *IR-modulation spectroscopy on the collective dynamics of free-standing ferroelectric liquid crystalline films*, *J. Phys. II France* **7**(1), 57 (1997), doi:10.1051/jp2:1997114.
- [141] F. Kremer, T. Fischer and A. Schönfeld, *Broadband dielectric spectroscopy on the collective and molecular dynamics in (low molecular weight and polymeric) ferroelectric liquid crystals*, *Ferroelectrics* **176**(1), 125 (1996), doi:10.1080/00150199608223606, <https://doi.org/10.1080/00150199608223606>.
- [142] I. Cohen, A. Ha, X. Zhao, M. Lee, T. Fischer, M. J. Strouse and D. Kivelson, *A low-temperature amorphous phase in a fragile glass-forming substance*, *The Journal of Physical Chemistry* **100**(20), 8518 (1996), doi:10.1021/jp953785h, <https://doi.org/10.1021/jp953785h>.
- [143] M.-W. Tsao, T. M. Fischer and C. M. Knobler, *Quantitative analysis of Brewster-angle microscope images of tilt order in Langmuir monolayer domains*, *Langmuir* **11**(8), 3184 (1995), doi:10.1021/la00008a051, <https://doi.org/10.1021/la00008a051>.
- [144] S. Ito, F. Kremer, T. Fischer and W. Knoll, *Guided optical waves in a ferroelectric liquid crystal layer: A birefringence analysis of molecular orientation on the switching process*, *Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals* **264**(1), 99 (1995), doi:10.1080/10587259508037305, <https://doi.org/10.1080/10587259508037305>.
- [145] B. Fischer, T. M. Fischer and W. Knoll, *Unusual splitting behavior of the dispersion of surface polaritons in gratings of different symmetry, amplitude, and profile*, *Appl. Opt.* **34**(25), 5773 (1995), doi:10.1364/AO.34.005773.
- [146] D. Kivelson, S. A. Kivelson, X. L. Zhao, T. M. Fischer and C. M. Knobler, *Frustration limited clusters and the behavior of supercooled liquids*, pp. 1–291, World Scientific, doi:10.1142/9789814533799 (1995), <https://www.worldscientific.com/doi/pdf/10.1142/9789814533799>.
- [147] B. Fischer, M.-W. Tsao, J. Ruiz-Garcia, T. M. Fischer, D. K. Schwartz and C. M. Knobler, *Observation of a change from splay to bend orientation at a phase transition in a Langmuir monolayer*, *The Journal of Physical Chemistry* **98**(31), 7430 (1994), doi:10.1021/j100082a005, <https://doi.org/10.1021/j100082a005>.
- [148] S. A. Kivelson, X. Zhao, D. Kivelson, T. M. Fischer and C. M. Knobler, *Frustration-limited clusters in liquids*, *The Journal of Chemical Physics* **101**(3), 2391 (1994), doi:10.1063/1.468414, <https://doi.org/10.1063/1.468414>.
- [149] T. M. Fischer, R. F. Bruinsma and C. M. Knobler, *Textures of surfactant monolayers*, *Phys. Rev. E* **50**, 413 (1994), doi:10.1103/PhysRevE.50.413.
- [150] S. Ito, M. Mitsuishi, M. Yamamoto, T. Fischer, F. Kremer and W. Knoll, *Guided optical waves for a study of molecular orientation and motion in a ferroelectric liquid crystal layer*, *Ferroelectrics* **148**(1), 369 (1993), doi:10.1080/00150199308019963, <https://doi.org/10.1080/00150199308019963>.

- [151] T. M. Fischer and R. Schilling, *A mode coupling analysis of the central peak at order disorder phase transitions*, *Zeitschrift für Physik B Condensed Matter* **92**(1), 67 (1993), doi:10.1007/BF01309169.
- [152] U. Fernandez, T. F. Fischer and W. Knoll, *Surface-plasmon microscopy with grating couplers*, *Optics Communications* **102**(1), 49 (1993), doi:https://doi.org/10.1016/0030-4018(93)90470-P.
- [153] B. Fischer, T. M. Fischer and W. Knoll, *Dispersion of surface plasmons in rectangular, sinusoidal, and incoherent silver gratings*, *Journal of Applied Physics* **75**(3), 1577 (1994), doi:10.1063/1.356394, https://doi.org/10.1063/1.356394.
- [154] A. Nemetz, T. Fischer, A. Ulman and W. Knoll, *Surface plasmon enhanced Raman spectroscopy with HS(CH₂)₂₁OH on different metals*, *The Journal of Chemical Physics* **98**(7), 5912 (1993), doi:10.1063/1.464885, https://doi.org/10.1063/1.464885.
- [155] T. Fischer, E. Frey and F. Schwabl, *Critical dynamics of dipolar antiferromagnets*, *Journal of Magnetism and Magnetic Materials* **104-107**, 201 (1992), doi:https://doi.org/10.1016/0304-8853(92)90765-G.
- [156] T. M. Fischer, *Thermische Transporteigenschaften duenner Polymerfilme und Oberflächenpolaritonen in strukturierten Grenzflächen*, Ph.D. thesis, The Johannes Gutenberg Universität Mainz, Dissertation (1992).
- [157] T. M. Fischer and W. Knoll, *Temperature diffusivity and heat conductivity of Langmuir-Blodgett-Kuhn and thin spun-on polymer films*, *Polymers for Advanced Technologies* **2**(5), 237 (1991), doi:https://doi.org/10.1002/pat.1991.220020505, https://onlinelibrary.wiley.com/doi/pdf/10.1002/pat.1991.220020505.
- [158] T. Fischer, E. Frey and F. Schwabl, *Critical dynamics of isotropic dipolar antiferromagnets*, *Physics Letters A* **146**(7), 457 (1990), doi:https://doi.org/10.1016/0375-9601(90)90729-8.
- [159] W. Gasser and T. Fischer, *On the second-order theory of the dielectric response function and of the spin susceptibility of the electron gas*, *Physica B: Condensed Matter* **162**(1), 43 (1990), doi:https://doi.org/10.1016/0921-4526(90)90090-H.
- [160] T. M. Fischer, *Einfluß der Dipolwechselwirkung auf dynamische Messgrößen in Ferro- und Antiferromagneten*, Diploma thesis (1989).