FIAS Evaluation 2024
List of Publications

We have asked all Fellows to provide you with a list of their 5 most relevant publications from 2020 until now.

Roberto Covino

1. Turoňová B, Sikora M, Schürmann C, Hagen WJH., Welsch S., Blanc FEC., Bülow Sv, Gecht M, Bagola K, Hörner C, Zandbergen Gv, Landry J, Azevedo NTDd, Mosalaganti S, Schwarz A, <u>Covino R</u>, Mühlebach MD, Hummer G, Krijnse Locker J, Beck M (2020) In situ structural analysis of SARS-CoV-2 spike reveals flexibility mediated by three hinges. *Science* **370** (6513) 203.
2. Nishimura T‡, Lazzeri G, <u>Covino R</u>‡, Tooze S (2023) Unique Amphipathic α-helix Drives Membrane Insertion and Enzymatic Activity of ATG3. *Science Advances* **9**, eadhi281.
3. Jung H*, <u>Covino R</u>*, Arjun A, Leitlold C, Dellago C, Bolhuis P, Hummer G (2023) Machine-guided path sampling to discover mechanisms of molecular self-organization. *Nature Computational Science* **3**, 334-345.
4. Lazzeri G, Jung H, Bolhuis P G, <u>Covino R</u> (2023) Molecular free energies, rates, and mechanisms from data-efficient path sampling simulations. *Journal of Chemical Theory and Computation* 19, 24, 9060–9076. DOI: 10.1021/acs.jctc.3c00821.
5. Beck M‡, <u>Covino R</u>‡, Hänelt I‡, Müller-McNicoll M‡ (Authors in alphabetical order) (2024) Understanding the cell: future views of structural biology. *Cell* 187 3 545-562 DOI: 10.1016/j.cell.2023.12.017.

Hannah Elfner

1. J.~Hammelmann, M.~Bluhm, M.~Nahrang and H.~Elfner, ``Fate of critical fluctuations in an interacting hadronic medium using maximum entropy distributions,'' [arXiv:2310.06636 [nucl-th]].
2. H.~Elfner and B.~Müller, ``The exploration of hot and dense nuclear matter: introduction to relativistic heavy-ion physics,'' J. Phys. G \textbf{50} (2023) no.10, 103001 doi:10.1088/1361-6471/ace824 [arXiv:2210.12056 [nucl-th]].
3. A.~Sch\"afer \textit{et al.} [SMASH], ``Particle production in a hybrid approach for a beam energy scan of Au+Au/Pb+Pb collisions between $\sqrt{s_\textrm{NN}}$ = 4.3 GeV and $\sqrt{s_\textrm{NN}}$ = 200.0 GeV,'' Eur. Phys. J. A (2022) no.11, 230 doi:10.1140/epja/s10050-022-00872-x [arXiv:2112.08724 [hep-ph]].
4. O.~Garcia-Montero, J.~Staudenmaier, A.~Schäfer, J.~M.~Torres-Rincon and H.~Elfner, ``Role of proton-antiproton regeneration in the late stages of heavy-ion collisions,'' Phys. Rev. C (2022) no.6, 064906 doi:10.1103/PhysRevC.105.064906 [arXiv:2107.08812 [hep-ph]].
5. J.~Staudenmaier et al. [SMASH], ``Deuteron production in relativistic heavy ion collisions via stochastic multiparticle reactions,' Phys. Rev. C (2021) no.3, 034908 doi:10.1103/PhysRevC.104.034908 [arXiv:2106.14287 [hep-ph]].

Nadine Flinner

1. Gross LE, Klinger A, Spies N, Ernst T, **Flinner N**, Simm S, Ladig R, Bodensohn U, Schleiff E. Insertion of plastidic β-barrel proteins into the outer envelopes of plastids involves an intermembrane space intermediate formed with Toc75-V/OEP80. Plant Cell. **2021** Jul 2;33(5):1657-1681. doi:10.1093/plcell/koab052. PMID: 33624803; PMCID: PMC8254496 **impact 2022: 12.0**

2. **Flinner N***, Gretser S*, Quaas A, Bankov K, Stoll A, Heckmann LE, Mayer RS, Doering C, Demes MC, Buettner R, Rueschoff J, Wild PJ. Deep learning based on hematoxylin-eosin staining outperforms immunohistochemistry in predicting

molecular subtypes of gastric adenocarcinoma. J Pathol. **2022** Jun;257(2):218-226. doi: 10.1002/path.5879. Epub 2022 Mar 31. PMID: 35119111. **impact 2022: 7.3**

3. Qoku A, Katsaouni N, **Flinner N***, Buettner F*, Schulz MH*. Multimodal analysis methods in predictive biomedicine. Comput Struct Biotechnol J. **2023** Nov 20;21:5829-5838. doi: 10.1016/j.csbj.2023.11.011. PMID: 38089932; PMCID: PMC10711035. **impact 2022: 6.0**

4. Bein J*, **Flinner N***, Häupl B, Mathur A, Schneider O, Abu-Ayyad M, Hansmann ML, Piel M, Oellerich T, Hartmann S. T-cell-derived Hodgkin lymphoma has motility characteristics intermediate between Hodgkin and anaplastic large cell lymphoma. J Cell Mol Med. **2022** Jun;26(12):3495-3505. doi: 10.1111/jcmm.17389. Epub 2022 May 19. PMID: 35586951; PMCID: PMC9189347. **impact 2022: 5.3**

5. Merk-Ahmad K, Bein J, Scharf S, Schäfer H, Bexte T, Ullrich E, Loth AG, **Flinner N**, Senff T, Schneider O, Hansmann ML, Piel M, Häupl B, Oellerich T, Donnadieu E, Hartmann S. The <i>RHOA</i> Mutation G17V Does Not Lead to Increased Migration of Human Malignant T Cells but Is Associated with Matrix Remodelling. Cancers (Basel). **2023** Jun 17;15(12):3226. doi: 10.3390/cancers15123226. PMID: 37370838; PMCID: PMC10296629. **impact 2022: 5.2**

Matthias Kaschube

1. Powell N.J., Hein B., Kong D., Elpelt J., Mulholland H.N., Kaschube M.*, Smith G.B.* (2024) Common modular architecture across diverse cortical areas in early development. PNAS, in press. *Shared supervision of study
2. Vogel, F.W., Alipek, S., Eppler, J.B., Osuna-Vargas, P., Triesch, J., Bissen, D., Acker-Palmer, A., Rumpel, S., Kaschube, M. Utilizing 2D-region-based CNNs for automatic dendritic spine detection in 3D live cell imaging. Scientific Reports. 2023 13:20497.
3. Wehrheim, M.H., Faskowitz, J., Sporns, O., Fiebach, C.J., Kaschube, M., Hilger, K. (2023) Few temporally distributed brain connectivity states predict human cognitive abilities. *Neuroimage*: 120246. DOI:10.1016/j.neuroimage.2023.120246
4. Aschauer, D.F. #, Eppler, J.-B.#, Ewig, L., Chambers, A., Pokorny, C., Kaschube, M.*, Rumpel, S.* (2022) Learning-induced biases in the ongoing dynamics of sensory representations predict stimulus generalization. *Cell reports*, **38**(6). DOI: 10.1016/j.celrep.2022.110340 Open Access *Shared supervision of study
5. Mulholland, H.N., Hein, B., Kaschube, M., Smith, G.B. (2021) Tightly coupled inhibitory and excitatory functional networks in the developing primary visual cortex. *Elife*. 10:e72456. DOI: 10.7554/eLife.72456 Open Access

Ivan Kisel

1. STAR:2023hwu, "Abdulhamid, M. I., …, I. Kisel and others", collaboration = "STAR", Longitudinal and transverse spin transfer to \ensuremath{\Lambda} and \ensuremath{\Lambda}\textasciimacron{} hyperons in polarized p+p collisions at s=200\,\,GeV}", doi = "10.1103/PhysRevD.109.012004", journal = "Phys. Rev. D", volume = "109" number = "1", year = "2024"
2. STAR:2023wta, "Abdulhamid, M. I., …, I. Kisel and others", collaboration = "STAR", title = "{Measurements of dielectron production in Au+Au collisions at sNN=27, 39, and 62.4 GeV from the STAR experiment}", doi = "10.1103/PhysRevC.107.L061901", journal = "Phys. Rev. C", volume = "107", number = "6", pages = "L061901", year = "2023"
3. article{STAR:2023qfk, author = "Abdulhamid, M. I., …, I. Kisel and others", collaboration = "STAR", title = "{Measurement of electrons from open heavy-flavor hadron decays in Au+Au collisions at $ \sqrt{s_{\textrm{NN}}} $ = 200 GeV with the STAR detector}", doi = "10.1007/JHEP06(2023)176", journal ="JHEP", volume = "06", year = "2023"

4. STAR:2022fan, author = "Abdallah, M. S., …, I. Kisel and others", collaboration = "STAR",title = "{Pattern of global spin alignment of \ensuremath{\phi} and K\$^{*0}\$ mesons in heavy-ion collisions}",doi = "10.1038/s41586-022-05557-5", journal = "Nature", volume = "614", number = "7947", pages = "244--248", year = "2023"
5. STAR:2019wjm, author = "Adam, J., …, I. Kisel and others", collaboration = "STAR", title = "{Measurement of the mass difference and the binding energy of the hypertriton and antihypertriton}", doi = "10.1038/s41567-020-0799-7", journal = "Nature Phys.", volume = "16", number = "4", year = "2020"

Marin-Leo Hansmann

Gerhard Hummer

1. S. Rao, M. Skulsuppaisarn, L. M. Strong, X. Ren, M. Lazarou, J. H. Hurley, G. Hummer, "Three-step docking by WIPI2, ATG16L1 and ATG3 delivers LC3 to the phagophore," Sci. Adv. 10, eadj8027 (2024).
2. M. Yu, M. Heidari, S. Mikhaleva, P. S. Tan, S. Mingu, H. Ruan, C. D. Reinkemeier, A. Obarska-Kosinska, M. Siggel, M. Beck, G. Hummer, E. A. Lemke, "Visualizing the disordered nuclear transport machinery in situ," Nature 617, 162-169 (2023). [https://doi.org/10.1038/s41586-023-05990-0]
3. H. Jung, R. Covino, A. Arjun, C. Leitold, C. Dellago, P. G. Bolhuis, G. Hummer, "Machine-guided path sampling to discover mechanisms of molecular self-organization," Nat. Comput. Sci. 3, 334-345 (2023). [https://doi.org/10.1038/s43588-023-00428-z]
4. S. Mosalaganti, A. Obarska-Kosinska, M. Siggel, R. Taniguchi, B. Turoňová, C. E. Zimmerli, K. Buczak, F. H. Schmidt, E. Margiotta, M.-T. Mackmull, W. J. H. Hagen, G. Hummer, J. Kosinski, M. Beck, "AI-based structure prediction empowers integrative structural analysis of human nuclear pores," Science 376, eabm9506 (2022). [https://doi.org/10.1126/science.abm9506]
5. B. Turoňová, M. Sikora, C. Schürmann, W. J. H. Hagen, S. Welsch, F. E. C. Blanc, S. von Bülow, M. Gecht, K. Bagola, C. Hörner, G. van Zandbergen, J. Landry, N. T. D. de Azevedo, S. Mosalaganti, A. Schwarz, R. Covino, M. D. Mühlebach, G. Hummer, J. K. Locker, M. Beck, "In situ structural analysis of SARS-CoV-2 spike reveals flexibility mediated by three hinges," Science 370, 203-208 (2020). [https://doi.org/10.1126/science.abd5223]

Volker Lindenstruth

1. ALICE ups its game for sustainable computing, Volker Lindenstruth for the ALICE Collaboration, CERN Courier Vol 63,5 Sept/Oct 2023, IOP Publishing
2. Technical Design Report for the CBM Online Systems - Part I, DAQ and FLES Entry Stage, The CBM Collaboration, DOI: 10.15120/GSI-2023-00739
3. Wo die Cloud die Erde berührt". Rechenzentren zwischen Nachhaltigkeitsanforderungen und Innovationsblockaden, Simon Heyny · Mardeni Simoni · Katarina Busch · Vera King · Volker Lindenstruth, Organisationsberatung, Supervision, Coaching (2024) 31:63–78 https://doi.org/10.1007/s11613-023-00861-z
4. Real-time data processing in the ALICE High Level Trigger at the LHC ALICE Collaboration Computer Physics Communications Volume 242 Page 25-48 September 2019 DOI 10.1016/j.cpc.2019.04.011
5.

Christoph von der Malsburg

1. C. von der Malsburg. Vorbild Gehirn - Randbedingungen für eine kognitive Architektur. In: Cognitive Computing - Theorie, Technik und Praxis. Hrsg. Edy Portmann and Sara D'Onofrio. Springer Vieweg, Edition Informatik Spektrum, pp. 3-30. Februar 2020
2. C. von der Malsburg. Toward understanding the neural code of the brain Biological Cybernetics (2021) 115:439--449
3. C. von der Malsburg, T. Stadelmann, B. Grewe. A Theory of Natural Intelligence. Cognitive Computation. arxiv.org/abs/2205.00002 (2022)

Franziska Matthäus

1. C. Fraga Delfino Kunz, A Gerisch, J. Glover, D. Headon, K. Painter, F. Matthäus, Novel aspects in pattern formation arise from coupling Turing reaction-diffusion and chemotaxis, Bull. Math. Biol. 86 (4), 2024.

2. M. Pereyra, A. Drusko, F. Strobl, F. Krämer, E. Stelzer, F. Matthäus, QuickPIV: Efficient 3D particle image velocimetry software applied to quantifying cellular migration during embryogenesis, BMC Bioinformatics 22: Art. no. 579, 2021.

3. L. Hof, T. Moreth, M. Koch, T. Liebisch, M. Kurtz, J. Tarnick, S.M. Lissek, M.M.A. Verstegen, L.J.W. van der Laan, M. Huch, F. Matthäus, E.H.K. Stelzer, F. Pampaloni, Long-term live imaging and multiscale analysis identify heterogeneity and core principles of epithelial organoid morphogenesis, BMC Biology 19(37), 2021.

4. T. Liebisch, A. Drusko, B. Mathew, E. H. K. Stelzer, S. C. Fischer, F. Matthäus, Cell fate clusters in ICM organoids arise from cell fate heredity & division – a modelling approach, Sci. Rep. 10:22405, 2020.

5. K.H. Kopfer, W. Jäger, F. Matthäus, A mechanochemical model for Rho GTPase mediated cell polarization, J. Theor. Biol., https://doi.org/10.1016/j.jtbi.2020.110386, 2020.

Ulrich Mayer

1. Daniel Allendorf, Ulrich Meyer, Manuel Penschuck, Hung Tran: Parallel global edge switching for the uniform sampling of simple graphs with prescribed degrees. J. Parallel Distributed Comput. 174: 118-129 (2023)
2. Daniel Allendorf, Ulrich Meyer, Manuel Penschuck, Hung Tran: Parallel and I/O-Efficient Algorithms for Non-Linear Preferential Attachment. ALENEX 2023: 65-76
3. Thomas Bläsius, Tobias Friedrich, Maximilian Katzmann, Ulrich Meyer, Manuel Penschuck, Christopher Weyand: Efficiently generating geometric inhomogeneous and hyperbolic random graphs. Netw. Sci. 10(4): 361-380 (2022)
4. Hannah Bast, Claudius Korzen, Ulrich Meyer, Manuel Penschuck: Algorithms for Big Data - DFG Priority Program 1736. Lecture Notes in Computer Science 13201, Springer 2022, ISBN 978-3-031-21533-9
5. Petra Berenbrink, David Hammer, Dominik Kaaser, Ulrich Meyer, Manuel Penschuck, Hung Tran: Simulating Population Protocols in Sub-Constant Time per Interaction. ESA 2020: 16:1-16:22

Georg Rümpker

1. Hering, P., Lindenfeld, M., Rümpker, G., 2023, Automatized localization of induced geothermal seismicity using robust time-domain array processing, Front.

Earth Sci., Sec. Solid Earth Geophysics, Volume 11, https://doi.org/10.3389/feart.2023.1217587

2. Link, F. and Rümpker, G., 2023, Shear-Wave Splitting Reveals Layered-Anisotropy Beneath the European Alps in Response to Mediterranean Subduction, Journal of Geophysical Research: Solid Earth, 128, e2023JB027192, https://doi.org/10.1029/2023JB027192; "Editor's Highlight" - please see the corresponding Eos article by JGR Associate Editor Fiona Darbyshire: Illuminating the Complex Structural Fabric Beneath the European Alps, https://eos.org/editor-highlights/illuminating-the-complex-structural-fabric-beneath-the-european-alps

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4. Reiss, M. C., Massimetti, F., Laizer, A. S., Campus, A., Rümpker, G., Kazimoto, E. O., 2023, Overview of seismo-acoustic tremor at Oldoinyo Lengai, Tanzania: shallow storage and eruptions of carbonatite melt, Journal of Volcanology and Geothermal Research, https://doi.org/10.1016/j.jvolgeores.2023.107898

5. Limberger, F., Rümpker, G., Lindenfeld, M., Deckert, H., 2022, Development of a numerical modelling method to predict the seismic signals generated by wind farms, Scientific Reports, 12, 15516, https://www.nature.com/articles/s41598-022-19799-w

Armen Sedrakian

1. A. Sedrakian, F. Weber and J. J. Li,
   "Confronting GW190814 with hyperonization in dense matter and hypernuclear compact stars,"
   Phys. Rev. D 102 (2020) no.4, 041301 doi:10.1103/PhysRevD.102.041301, arXiv:2007.09683.
   57 citations counted in INSPIRE as of 28 Feb 2024

2. A. R. Raduta, M. Oertel and A. Sedrakian,
   "Proto-neutron stars with heavy baryons and universal relations," Mon. Not. Roy. Astron. Soc. 499 (2020) no.1, 914-931 doi:10.1093/mnras/staa2491, arXiv:2008.00213.
   44 citations counted in INSPIRE as of 28 Feb 2024

3. J. J. Li, A. Sedrakian and M. Alford,
   "Relativistic hybrid stars in light of the NICER PSR J0740+6620 radius measurement",
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   erratum: Phys. Rev. D 105 (2022) no.10, 109901
   doi:10.1103/PhysRevD.104.L121302, arXiv:2108.13071.
   43 citations counted in INSPIRE as of 28 Feb 2024

4. M. Alford, A. Harutyunyan and A. Sedrakian,
   "Bulk Viscous Damping of Density Oscillations in Neutron Star Mergers",
   Particles 3 (2020) no.2, 500-517
   doi:10.3390/particles3020034, arXiv:2006.07975.
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5. A. Sedrakian, J. J. Li and F. Weber,
   "Heavy baryons in compact stars",
   Prog. Part. Nucl. Phys. 131 (2023), 104041 doi:10.1016/j.ppnp.2023.104041, arXiv:2212.01086. 24 citations counted in INSPIRE as of 28 Feb 2024

Thomas Sokolowski

1. AI-powered simulation-based inference of a genuinely spatial-stochastic model of early mouse embryogenesis MA Ramírez-Sierra, TR Sokolowski arXiv preprint arXiv:2402.153302024

2. Stable developmental patterns of gene expression without morphogen gradients M Majka, NB Becker, PR Wolde, M Zagorski, TR Sokolowski arXiv preprint arXiv:2306.00537 2023
3. Deriving a genetic regulatory network from an optimization principle TR Sokolowski, T Gregor, W Bialek, G Tkačik arXiv preprint arXiv:2302.05680 2023
4. Information theory entering soils and tissues TR Sokolowski Cell Systems 13 (7), 511-51312022
5. Statistical analysis and optimality of neural systems W Młynarski, M Hledík, TR Sokolowski, G Tkačik Neuron 109 (7), 1227-1241. e5

Jan Steinheimer

1. QCD Equation of State of Dense Nuclear Matter from a Bayesian Analysis of Heavy-Ion Collision Data Manjunath Omana Kuttan (Frankfurt U. and Frankfurt U., FIAS and Goethe U., Frankfurt, IAP and Unlisted), Jan Steinheimer (Frankfurt U., FIAS), Kai Zhou (Frankfurt U., FIAS), Horst Stoecker (Darmstadt, GSI and Frankfurt U., FIAS and Goethe U., Frankfurt, IAP) e-Print: 2211.11670 [hep-ph] DOI: 10.1103/PhysRevLett.131.202303 (publication) Published in: Phys.Rev.Lett. 131 (2023) 20, 202303
2. Gravitational Waves from a Core g Mode in Supernovae as Probes of the High-Density Equation of State Pia Jakobus (Monash U. and MIT, Cambridge, LIGO), Bernhard Müller (Monash U. and MIT, Cambridge, LIGO), Alexander Heger (Monash U. and MIT, Cambridge, LIGO and ARC, CoEPP, Australia and Michigan State U., JINA), Shuai Zha (Tsung-Dao Lee Inst., Shanghai), Jade Powell (Swinburne U., Ctr. Astrophys. Supercomput.) et al.e-Print: 2301.06515 [astro-ph.HE] DOI: 10.1103/PhysRevLett.131.191201 (publication) Published in: Phys.Rev.Lett. 131 (2023) 19, 191201
3. Probing neutron-star matter in the lab: Similarities and differences between binary mergers and heavy-ion collisions Elias R. Most (Princeton U., PCTS and Princeton U. (main) and Princeton, Inst. Advanced Study), Anton Motornenko (Frankfurt U. and Frankfurt U., FIAS), Jan Steinheimer (Frankfurt U., FIAS), Veronica Dexheimer (Kent State U.), Matthias Hanauske (Frankfurt U. and Frankfurt U., FIAS) et al.be-Print: 2201.13150 [nucl-th] DOI: 10.1103/PhysRevD.107.043034 (publication) Published in: Phys.Rev.D 107 (2023) 4, 043034
4. The high-density equation of state in heavy-ion collisions: constraints from proton flow Jan Steinheimer (Frankfurt U., FIAS), Anton Motornenko (Frankfurt U., FIAS), Agnieszka Sorensen (Washington U., Seattle), Yasushi Nara (Akita Intl. U.), Volker Koch (LBL, Berkeley) et al. e-Print: 2208.12091 [nucl-th] DOI: 10.1140/epjc/s10052-022-10894-w Published in: Eur.Phys.J.C 82 (2022) 10, 911, Eur.Phys.J.C 82 (2022), 911
5. A fast centrality-meter for heavy-ion collisions at the CBM experiment Manjunath Omana Kuttan (Frankfurt U., FIAS and Otto Stern School), Jan Steinheimer (Frankfurt U., FIAS), Kai Zhou (Frankfurt U., FIAS), Andreas Redelbach (Frankfurt U., FIAS and Otto Stern School), Horst Stoecker (Frankfurt U., FIAS and Otto Stern School and Darmstadt, GSI) e-Print: 2009.01584 [hep-ph]DOI: 10.1016/j.physletb.2020.135872 Published in: Phys.Lett.B 811 (2020), 135872

Horst Stöcker

1. Omana Kuttan, M., Steinheimer, J., Zhou, K., & Stoecker, H. (2023). QCD Equation of State of Dense Nuclear Matter from a Bayesian Analysis of Heavy-Ion Collision Data. Physical Review Letters, 131(20), 202303.

2. L. Wang, T. Xu, T. Stoecker, H. Stoecker, Y. Jiang, and K. Zhou, Machine Learning Spatio-Temporal Epidemiological Model to Evaluate Germany-County-Level COVID-19 Risk, Mach. Learn.: Sci. Technol. 2, 035031 (2021).

3. Shriya Soma, Horst Stöcker and Kai Zhou, "Mass and Tidal parameter extraction from gravitational waves of binary neutron stars mergers using deep learning", Journal of Cosmology and Astroparticle Physics, 01, 009 (2024)

4. Elias R. Most (Princeton U., PCTS and Princeton U. (main) and Princeton, Inst. Advanced Study), Anton Motornenko (Frankfurt U. and Frankfurt U., FIAS), Jan Steinheimer (Frankfurt U., FIAS), Veronica Dexheimer (Kent State U.), Matthias Hanauske (Frankfurt U. and Frankfurt U., FIAS) et al.
e-Print: 2201.13150 [nucl-th] Phys.Rev.D 107 (2023) 4, 043034

5. R .V. Poberezhnyuk, H. Stoecker, V.Vovchenko, Quarkyonic matter with quantum van der Waals theory, Phys.Rev.C 108 (2023) 4, 045202
https://inspirehep.net/literature/2680339

Jürgen Struckmeier

1. D. Benisty, D. Vasak, J. Kirsch and J. Struckmeier, "Low-redshift constraints on covariant canonical Gauge theory of gravity," Eur. Phys. J. C81, 125 (2021)

2. D. Benisty, E.I. Guendelman, A. van de Venn, D. Vasak, J. Struckmeier, H. Stoecker, "The dark side of Torsion: Dark Energy from propagating torsion", Eur. Phys. J C82, 264 (2022)

3. D. Benisty, A. van de Venn, D. Vasak, J. Struckmeier, H. Stoecker, "Torsional dark energy", Int. J. Mod. Phys. D, Vol. 31, No.14, 2242013 (2022)

4. A. van de Venn, D. Vasak, J. Kirsch, J. Struckmeier, "Torsional dark energy in quadratic gauge gravity", Eur. Phys. C83, 288 (2023)

5. J. Kirsch, D. Vasak, A. van de Venn, J. Struckmeier, "Torsion driving cosmic expansion", Eur. Phys. J. C83, 425 (2023)

Sebastian Thallmaier

1. P. C. T. Souza*, R. Alessandri, J. Barnoud, S. Thallmair, I. Faustino, F. Grünewald, I. Patmanidis, H. Abdizadeh, B. M. H. Bruininks, T. A. Wassenaar, P. C. Kroon, J. Melcr, V. Nieto, V. Corradi, H. M. Khan, J. Domanski, M. Javanainen, H. Martinez-Seara, N. Reuter, R. B. Best, I. Vattulainen, L. Monticelli, X. Periole, D. P. Tielemann, A. H. de Vries, S. J. Marrink*
Martini 3: A General Purpose Force Field for Coarse-Grained Molecular Dynamics Nat. Methods 18, 382 (2021).

2. S. Emmert, G. Quargnali, S. Thallmair, P. Rivera-Fuentes*
A Locally Activatable Sensor for Robust Quantification of Organellar Glutathione Nat. Chem. 15, 1415 (2023).

3. V. Thallmair, L. Schultz, W. Zhao, S. J. Marrink, D. Oliver*, S. Thallmair*
Two Cooperative Binding Sites Sensitize PI(4,5)P2 Recognition by the Tubby Domain Sci. Adv. 8, eabp9471 (2022).

4. Q. Meng†, C. Ramírez-Palacios†, N. Capra, M. E. Hooghwinkel, S. Thallmair, H. J. Rozeboom, A.-M. W. H. Thunnissen, H. J. Wijma, S. J. Marrink, D. B. Janssen* Computational Redesign of an ω-Transaminase from Pseudomonas jessenii for Asymmetric Synthesis of Enantiopure Bulky Amines ACS Catal. 11, 10733 (2021).

5. P. Kobauri, N. S. Galenkamp, A. M. Schulte, J. de Vries, N. A. Simeth, G. Maglia, S. Thallmair, D. Kolarski, W. Szymanski*, B. L. Feringa*
Hypothesis-Driven, Structure-Based Design in Photopharmacology: The Case of eDHFR Inhibitors J. Med. Chem. 65, 4798 (2022).

Sebastian Thallmaier

1. +P. C. T. Souza*, R. Alessandri, J. Barnoud, S. Thallmair, I. Faustino, F. Grünewald, I. Patmanidis, H. Abdizadeh, B. M. H. Bruininks, T. A. Wassenaar, P. C. Kroon, J. Melcr, V. Nieto, V. Corradi, H. M. Khan, J. Domanski, M. Javanainen, H. Martinez-Seara, N. Reuter, R. B. Best, I. Vattulainen, L. Monticelli, X. Periole, D. P. Tielemann, A. H. de Vries, S. J. Marrink* Martini 3: A General Purpose Force Field for Coarse-Grained Molecular Dynamics Nat. Methods 18, 382 (2021).
2. S. Emmert, G. Quargnali, S. Thallmair, P. Rivera-Fuentes*
   A Locally Activatable Sensor for Robust Quantification of Organellar Glutathione
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Kai Zhou

1. "Optimal Power Flow in a Highly Renewable Power System Based on Attention Neural Networks", C Li, A Kies, **K Zhou** *, M Schlott, OE Sayed, M Bilousova, H Stoecker, *Applied Energy 359, 122779*（*2024*）

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4. （4）"QCD Equation of State of Dense Nuclear Matter from a Bayesian Analysis of Heavy-Ion Collision Data", MO Kuttan, J Steinheimer, **K Zhou** *, H Stoecker, *Physical Review Letters 131, 202303*（*2023*）

5. （5）"Identifying Lightning Structures Via Machine Learning", L Wang, B M Hare, **K Zhou** *, H Stöcker, O Scholten, *Chaos, Solitons & Fractals 170，113346*（*2023*）

Prizes and Awards:

Hannah Elfner

- Scientist of the year 2021 by Gertrud and Alfons Kassel foundation at Goethe University (Hannah Elfner)
- Nomination for best PhD supervision 2023, GRADE Frankfurt, (Hannah Elfner)
- Renan Hirayama: best talk at Zimanyi School 2022, Flash talk for poster at Hard Probes 2023 and Giersch Excellence Award 2023

Gerhard Hummer

- ISQBP Award in Computational Biology, July 2022
- Elected Member of the German National Academy of Sciences Leopoldina, since 2021

Ulrich Mayer

- 2020 ESA Test of Time Award for Publication: U. Meyer and P. Sanders. Δ-stepping: A parallel shortest path algorithm. In Proc. 6th Ann. European Symposium on Algorithms (ESA), volume 1461 of LNCS, pages 393–404. Springer, 1998. PACE 2023 Winner

- The PACE 2023 challenge (https://pacechallenge.org/2023/) asked to design and implement practical algorithms to compute contraction sequences of small twin-width. Together with our colleagues from Holger Dell's group and Frank Kammer's group we contributed the winning heuristic solver and placed second in the exact track (https://pacechallenge.org/2023/results/).

Jochen Triesch

- 2019 – 2022: French Tech Chair, Université Clermont-Auvergne, France
- 2021: 4th ENNS Best Paper Award: Seeliger N, Triesch, J, Intl. Conf. on Artificial Neural Networks (ICANN)