

## Prof. Dr. G. Jakob, publication list scientific journals:

Years: [2023](#), [2022](#), [2021](#), [2020](#),  
[2019](#), [2018](#), [2017](#), [2016](#), [2015](#), [2014](#), [2013](#), [2012](#), [2011](#), [2010](#),  
[2009](#), [2008](#), [2007](#), [2006](#), [2005](#), [2004](#), [2003](#), [2002](#), [2001](#), [2000](#),  
[1999](#), [1998](#), [1997](#), [1996](#), [1995](#), [1994](#), [1993](#), [1992](#), [1991](#), [1990](#)

- 273) **Magneto-ionic modulation of the interlayer exchange interaction in synthetic antiferromagnets**  
Maria-Andromachi Syskaki, Takaaki Dohi, Sergei Olegovich Filnov, Sergey Alexeyevich Kasatikov, Beatrice Bednarz, Alevtina Smekhova, Florian Kronast, Mona Bhukta, Rohit Pachat, Johannes Wilhelmus van der Jagt, Shimpei Ono, Dafiné Ravelosona, Jürgen Langer, Mathias Kläui, Liza Herrera Diez, and Gerhard Jakob,  
Appl. Phys. Lett. **124**, 082408 (2024), [doi: 10.1063/5.0198750](https://doi.org/10.1063/5.0198750)
- 272) **Observation of time-reversal symmetry breaking in the band structure of altermagnetic RuO<sub>2</sub>**  
O. Fedchenko, J. Minar, A. Akashdeep, S. W. D'Souza, D. Vasilyev, O. Tkach, L. Odenbreit, Q. L. Nguyen, D. Kutnyakhov, N. Wind, L. Wenthaus, M. Scholz, K. Rossnagel, M. Hoesch, M. Aeschlimann, B. Stadtmueller, M. Kläui, G. Schoenhense, G. Jakob, T. Jungwirth, L. Smejkal, J. Sinova, H. J. Elmers  
Sci. Adv. **10**, eadj4883 (2024), [doi: 10.1126/sciadv.adj4883](https://doi.org/10.1126/sciadv.adj4883)
- 271) **Electronic Transparency of Internal Interfaces in Metallic Nanostructures Comprising Light, Heavy and Ferromagnetic Metals Measured by Terahertz Spectroscopy**  
Nicolas S. Beermann, Savio Fabretti, Hassan A. Hafez, Maria-Andromachi Syskaki, Iryna Kononenko, Gerhard Jakob, Mathias Kläui, and Dmitry Turchinovich,  
Nanophotonics **2023**, 0721 (2024), [doi: 10.1515/nanoph-2023-0721](https://doi.org/10.1515/nanoph-2023-0721)  
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- 270) **Electrical coupling of superparamagnetic tunnel junctions mediated by spin-transfer-torques**  
Leo Schnitzspan, Mathias Kläui, and Gerhard Jakob,  
Appl. Phys. Lett. **123**, 232403 (2023), [doi: 10.1063/5.0169679](https://doi.org/10.1063/5.0169679)
- 269) **Optimization of Permalloy properties for magnetic field sensors using He<sup>+</sup> irradiation**  
Giovanni Masciocchi, Johannes Wilhelmus van der Jagt, Maria-Andromachi Syskaki, Jürgen Langer, Gerhard Jakob, Jeffrey McCord, Benjamin Borie, Andreas Kehlberger, Dafine Ravelosona, Mathias Kläui,  
Phys. Rev. Applied **20**, 014001 (2023), [doi: 10.1103/PhysRevApplied.20.014001](https://doi.org/10.1103/PhysRevApplied.20.014001)
- 268) **Single device offset-free magnetic field sensing principle with tunable sensitivity and linear range based on spin-orbit-torques**  
Sabri Koraltan, Christin Schmitt, Florian Bruckner, Claas Abert, Klemens Prügl, Michael Kirsch, Rahul Gupta, Sebastian Zeilinger, Joshua M. Salazar-Mejía, Milan Agrawal, Johannes Güttinger, Armin Satz, Gerhard Jakob, Mathias Kläui, and Dieter Suess,  
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- 267) **Tailoring Magnetic Properties and Suppressing Anisotropy in Permalloy Films by Deposition in a Rotating Magnetic Field,**  
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- 266) **Enhanced thermally-activated skyrmion diffusion in synthetic antiferromagnetic systems with tunable effective topological charge**  
Takaaki Dohi, Markus Weißenhofer, Nico Kerber, Fabian Kammerbauer, Yuqing Ge, Klaus Raab, Jakub Zázvorka, Maria-Andromachi Syskaki, Aga Shahee, Moritz Ruhwedel, Tobias Böttcher, Philipp Pirro, Gerhard Jakob, Ulrich Nowak, and Mathias Kläui,  
Nature Commun. **14**, 5424 (2023), [doi: 10.1038/s41467-023-40720-0](https://doi.org/10.1038/s41467-023-40720-0)
- 265) **Fiber-tip spintronic terahertz emitters**  
F. Paries, N. Tiercelin, G. Lezier, M. Vanwollegem, F. Selz, M-A. Syskaki, F. Kammerbauer, G. Jakob, M. Jourdan, M. Kläui, Z. Kaspar, T. Kampfrath, T.S. Seifert, G. v. Freyman, and D. Molter,  
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- 264) **Nanosecond True Random Number Generation with Superparamagnetic Tunnel Junctions - Identification of Joule Heating and Spin-Transfer-Torque effects**  
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- 263) **Suppression of the spin waves non-reciprocity due to interfacial Dzyaloshinskii–Moriya interaction by lateral confinement in magnetic nanostructures**  
S. Tacchi, R. Silvani, M. Kuepferling, A. Fernández Scarioni, S. Sievers, H.W. Schumacher, E. Darwin, M.-A. Syskaki, G. Jakob, M. Kläui, and G. Carlotti,  
Phys. Rev. B **108**, 024430 (2023), [doi: 10.1103/PhysRevB.108.024430](https://doi.org/10.1103/PhysRevB.108.024430)
- 262) **Thermally induced all-optical ferromagnetic resonance in thin YIG films**  
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New J. Phys. **25**, 033016 (2023), [doi: 10.1088/1367-2630/acc203](https://doi.org/10.1088/1367-2630/acc203)
- 261) **Detection of long-range orbital-Hall torques**  
Arnab Bose, Fabian Kammerbauer, Rahul Gupta, Dongwook Go, Yuriy Mokrousov, Gerhard Jakob, and Mathias Kläui  
Phys. Rev. B. **107**, 134423 (2023), [doi: 10.1103/PhysRevB.107.134423](https://doi.org/10.1103/PhysRevB.107.134423)
- 260) **Temperature Dependence of the Hyperfine Magnetic Field at Fe Sites in Ba-Doped BiFeO<sub>3</sub> Thin Films Studied by Emission Mössbauer Spectroscopy**  
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- 259) **Broadband Spintronic Terahertz Source with Peak Electric Fields Exceeding 1.5 MV/cm**  
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- 258) **Optimised Spintronic Emitters of Terahertz Radiation for Time Domain Spectroscopy**  
Ford M. Wagner, Simas Melnikas, Joel Cramer, Djamshid A. Damry, Chelsea Q. Xia, Kun Peng, Gerhard Jakob, Mathias Kläui, Simonas Kičas, and Michael B. Johnston,  
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- 2022** [top](#)
- 257) **Atomic Force Manipulation of Single Magnetic Nanoparticles for Spin-Based Electronics**  
Paul Burger, Gyanendra Singh, Christer Johansson, Carlos Moya, Gilles Bruylants, Gerhard Jakob, and Alexei Kalaboukhov,  
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- 256) **Control of magnetoelastic coupling in Ni/Fe multilayers using He<sup>+</sup> ion irradiation**  
Giovanni Masciocchi, Johannes van der Jagt, Maria-Andromachi Syskaki, Alessio Lamperti, Niklas Wolff, Andriy Lotnyk, Juergen Langer, Lorenz Kienle, Gerhard Jakob, Benjamin Borie, Andreas Kehlberger, Dafine Ravelosona, and Mathias Kläui,  
*Appl. Phys. Lett.* **121**, 182401 (2022); [doi: 10.1063/5.0107942](https://doi.org/10.1063/5.0107942)
- 255) **Key points in the determination of the interfacial Dzyaloshinskii-Moriya interaction from asymmetric bubble domain expansion**  
A. Magni, G. Carlotti, A. Casiraghi, E. Darwin, G. Durin, L. Herrera Diez, B.J. Hickey, A. Huxtable, C.Y. Hwang, G. Jakob, C. Kim, M. Kläui, J. Langer, C.H. Marrows, H.T. Nembach, D. Ravelosona, G.A. Riley, J.M. Shaw, V. Sokalski, S. Tacchi, and M. Kuepferling,  
*IEEE Transactions on Magnetics*, (2022), [doi: 10.1109/TMAG.2022.3217891](https://doi.org/10.1109/TMAG.2022.3217891)
- 254) **Anisotropic long-range spin transport in canted antiferromagnetic orthoferrite YFeO<sub>3</sub>**  
Shubhankar Das, A. Ross, X. X. Ma, S. Becker, C. Schmitt, F. van Duijn, F. Fuhrmann, M.-A. Syskaki, U. Ebels, V. Baltz, A.-L. Barra, H. Y. Chen, G. Jakob, S. X. Cao, J. Sinova, O. Gomonay, R. Lebrun, M. Kläui,  
*Nature Commun.* **13**, 6140 (2022), [doi: 10.1038/s41467-022-33520-5](https://doi.org/10.1038/s41467-022-33520-5)
- 253) **Giant quadratic magneto-optical response of thin Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> films for sensitive magnetometry experiments**  
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*Phys. Rev. B* **106**, 104443 (2022), [doi: 10.1103/PhysRevB.106.104434](https://doi.org/10.1103/PhysRevB.106.104434)
- 252) **Nanoscale subsurface dynamics of solids upon high-intensity laser irradiation observed by femtosecond grazing-incidence x-ray scattering**  
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*Phys. Rev. Research* **4**, 033038 (2022), [doi: 10.1103/PhysRevResearch.4.033038](https://doi.org/10.1103/PhysRevResearch.4.033038)
- 251) **Average power scaling of THz spintronic emitters efficiently cooled in reflection geometry**  
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- 250) **Terahertz-wave decoding of femtosecond extreme-ultraviolet light pulses**  
I. Ilyakov, N. Agrawal, J. Deinert, J. Liu, A. Yaroslavtsev, L. Foglia, G. Kurdi, R. Mincigrucci, E. Principi, G. Jakob, M. Kläui, T. S. Seifert, T. Kampfrath, S. Kovalev, R. E. Carley, A. O. Scherz, M. Gensch,  
*Optica* **9**, 545 (2022), [doi: 10.1364/OPTICA.453130](https://doi.org/10.1364/OPTICA.453130)
- 249) **Transition of laser-induced terahertz spin currents from torque- to conduction-electron-mediated transport**  
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*Phys. Rev. B.* **105**, 067201 (2022), [doi: 10.1103/PhysRevB.105.184408](https://doi.org/10.1103/PhysRevB.105.184408)
- 248) **Observation of the Orbital Rashba-Edelstein Magnetoresistance**  
Shilei Ding, Zhongyu Liang, Dongwook Go, Chao Yun, Mingzhu Xue, Zhou Liu, Sven Becker, Wenyun Yang, Honglin Du, Changsheng Wang, Yingchang Yang, Gerhard Jakob, Mathias Kläui, Yuriy Mokrousov, and Jinbo Yang,  
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- 247) **Tuning spin-orbit torques across the phase transition in VO<sub>2</sub>/NiFe heterostructures**  
Jun-young Kim, Joel Cramer, Kyujoon Lee, Dong-Soo Han, Dongwook Go, Pavel Salev, Pavel N. Lapa, Nicolas M. Vargas, Ivan K. Schuller, Yuriy Mokrousov, Gerhard Jakob, and Mathias Kläui, *Adv. Funct. Mater.* **2022**, 2111555 (2022), [doi: 10.1002/adfm.202111555](https://doi.org/10.1002/adfm.202111555)
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- 246) **Anomalous Hall effect in magnetic insulator heterostructures: Contributions from spin-Hall and magnetic-proximity effects**  
Shilei Ding, Zhongyu Liang, Chao Yun, Rui Wu, Mingzhu Xue, Zhongchong Lin, Andrew Ross, Sven Becker, Wenyun Yang, Xiaobai Ma, Dongfeng Chen, Kai Sun, Gerhard Jakob, Mathias Kläui, and Jinbo Yang, *Phys. Rev. B* **104**, 224410 (2021), [doi: 10.1103/PhysRevB.104.224410](https://doi.org/10.1103/PhysRevB.104.224410)
- 245) **Imprinting the complex dielectric permittivity of liquids into the spintronic terahertz emissions**  
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- 244) **Assembly of iron oxide nanosheets at the air–water interface by leucine–histidine peptides**  
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- 243) **Tailoring large magnetoresistance in Dirac semimetal SrIrO<sub>3</sub> films**  
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- 242) **Magnetic coupling in Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub>/Gd<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> heterostructures**  
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- 241) **Modulating the polarization of broadband terahertz pulses from a spintronic emitter at rates up to 10 kHz**  
O. Gueckstock, L. Nadvornik, T.S. Seifert, M. Borchert, G. Jakob, G. Woltersdorf, M. Kläui, M. Wolf, and T. Kampfrath, *Optica* **8**, 1013 (2021), [doi: 10.1364/OPTICA.430504](https://doi.org/10.1364/OPTICA.430504)
- 240) **Heisenberg Exchange and Dzyaloshinskii-Moriya Interaction in Ultrathin CoFeB Single and Multilayers**  
Tobias Böttcher, Kyujoon Lee, Frank Heussner, Samridh Jaiswal, Gerhard Jakob, Mathias Kläui, Burkard Hillebrands, Thomas Brächer, Philipp Pirro, *IEEE Transactions on Magnetics* **57**, 1600207 (2021), [doi: 10.1109/TMAG.2021.3079259](https://doi.org/10.1109/TMAG.2021.3079259)
- 239) **Broadband Terahertz Probes of Anisotropic Magnetoresistance Disentangle Extrinsic and Intrinsic Contributions**  
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- 238) **Terahertz Spin-To-Charge Conversion by Interfacial Skew Scattering in Metallic Bilayers**  
Oliver Gueckstock, Lukáš Nadvorník, Martin Gradhand, Tom Sebastian Seifert, Genaro Bierhance, Reza Rouzegar, Martin Wolf, Mehran Vafae, Joel Cramer, Maria Andromachi Syskaki, Georg Woltersdorf, Ingrid Mertig, Gerhard Jakob, Mathias Kläui, and Tobias Kampfrath, *Adv. Mater.* **2021**, 2006281 (2021), [doi: 10.1002/adma.202006281](https://doi.org/10.1002/adma.202006281)

- 237) **Impact of the interplay of piezoelectric strain and current-induced heating on the field-like spin-orbit torque in perpendicularly magnetized Ta/Co<sub>20</sub>Fe<sub>60</sub>B<sub>20</sub>/Ta/MgO film**  
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- 236) **Electrical detection of the spin reorientation transition in antiferromagnetic TmFeO<sub>3</sub> thin films by spin Hall magnetoresistance**  
S. Becker, A. Ross, R. Lebrun, L. Baldrati, S. Ding, F. Schreiber, F. Maccherozzi, D. Backes, M. Kläui, and G. Jakob,  
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- 235) **Description of intermodulation generation of nonlinear responses beyond the validity of the power series expansion**  
F. Bergmann, M. Letz, H. Maune, and G. Jakob,  
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- 234) **Rapid online solid-state battery diagnostics with optically pumped magnetometers**  
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- 233) **Harnessing non-local orbital-to-spin conversion of interfacial orbital currents for efficient spin-orbit torques**  
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- 232) **Enhancement of Spin Hall Conductivity in W-Ta alloy**  
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- 231) **Impact of Annealing Temperature on Tunneling Magnetoresistance Multilayer Stacks**  
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- 230) **Phonon Bridge Effect in Superlattices of Thermoelectric TiNiSn/HfNiSn With Controlled Interface Intermixing**  
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- 229) **Spin-orbit torque driven multi-level switching in He<sup>+</sup> irradiated W-CoFeB-MgO Hall bars with perpendicular anisotropy**  
Xiaoxuan Zhao, Yang Liu, Daoqian Zhu, Mamour Sall, Xueying Zhang, Helin Ma, Jürgen Langer, Berthold Ocker, Samridh Jaiswal, Gerhard Jakob, Mathias Kläui, Weisheng Zhao, and Dafiné Ravelosona,  
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- 228) **Electric-field control of spin-orbit torques in perpendicularly magnetized W/CoFeB/MgO film**  
Mariia Filianina, Jan-Philipp Hanke, Kyujoon Lee, Dong-Soo Han, Samridh Jaiswal, Adithya Rajan, Gerhard Jakob, Yuriy Mokrousov, and Mathias Kläui,  
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- 227) **Current induced chiral domain wall motion in CuIr/CoFeB/MgO thin films with strong higher order spin-orbit torques**  
Franziska Martin, Kyujoon Lee, Alexander Kronenberg, Samridh Jaiswal, Robert Reeve, Mariia Filianina, Sanghyun Ji, Myung-Hwa Jung, Gerhard Jakob, and Mathias Kläui,  
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- 226) **The challenges in realizing an exchange coupled BiFeO<sub>3</sub> – double perovskite ferrimagnet bilayer**  
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- 225) **Propagation Length of Antiferromagnetic Magnons Governed by Domain Configurations**  
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- 224) **Individual skyrmion manipulation by local magnetic field gradients**  
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- 223) **Hole Localization in Thermoelectric Half-Heusler (Zr<sub>0.5</sub>Hf<sub>0.5</sub>)Co(SbSn<sub>x</sub>) Thin Films**  
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