

Journal Papers

total number of publications: 22, h-index: 10

Recently Submitted

24. Y. Utz, **F. Hammerath**, R. Kraus, T. Ritschel, J. Geck, L. Hozoi, J. van den Brink, A. Mohan, C. Hess, K. Karmakar, S. Singh, D. Bounoua, R. Saint-Martin, L. Pinsard-Gaudart, A. Revcolevschi, B. Büchner, and H.-J. Grafe, *The effect of different in-chain impurities on the magnetic properties of the spin chain compound SrCuO₂ probed by NMR*, submitted to Phys. Rev. B, preprint on [arXiv:1706.02604](https://arxiv.org/abs/1706.02604) (2017).
23. M. Gellesch, **F. Hammerath**, V. Süß, M. Haft, S. Hampel, S. Wurmehl, and B. Büchner, *The compositional analysis of multi-element magnetic nanoparticles with a combined NMR and TEM approach*, submitted to Journal of Nanoparticle Research (2017).

2017

22. K. Karmakar, M. Skoulatos, G. Prando, B. Roessli, U. Stuhr, **F. Hammerath**, C. Rüegg, and S. Singh, *Effects of quantum spin-1/2 impurities on the magnetic properties of zigzag spin chains*, *Phys Rev. Lett.* **118**, 107201 (2017).

2016

21. G. Lang, L. Veyrat, U. Gräfe, **F. Hammerath**, D. Paar, G. Behr, S. Wurmehl, and H.-J. Grafe, *Spatial competition of the ground states in 1111 iron pnictides*, *Phys. Rev. B* **94**, 014514 (2016).
20. C. Hess, H. Grafe, A. Kondrat, G. Lang, **F. Hammerath**, L. Wang, R. Klingeler, G. Behr, and B. Büchner, *Nematicity in LaFeAsO_{1-x}F_x*, *Phys. Status Solidi B.* **254**, 1600214 (2016).

2015

19. Y. Utz, **F. Hammerath**, S. Nishimoto, C. Hess, N. S. Beesetty, R. Saint-Martin, A. Revcolevschi, B. Büchner, and H.-J. Grafe, *Suppression of the Impurity-induced Local Magnetism by the Opening of a Spin Pseudogap in Ni-doped Sr₂CuO₃*, *Phys. Rev. B* **92**, 060405(R) (2015).
18. **F. Hammerath**, M. Moroni, L. Bossoni, S. Sanna, R. Kappenberger, S. Wurmehl, A.U.B. Wolter, M. A. Afrassa, Y. Kobayashi, M. Sato, B. Büchner, and P. Carretta, *Enhancement of low-frequency fluctuations and superconductivity breakdown in Mn-doped La_{1-y}Y_yFeAsO_{0.89}F_{0.11} superconductors*, *Phys. Rev. B* **92**, 020505(R) (2015).

17. G. A. Artioli, **F. Hammerath**, M. C. Mozzati, P. Carretta, F. Corana, B. Mannucci, S. Margadonna, and L. Malavasi, *Superconductivity in Sm-doped [n]phenacenes ($n = 3, 4, 5$)*, *Chem. Comm.* **51**, 1092-1095 (2015).

2014

16. **F. Hammerath**, E. M. Brüning, S. Sanna, Y. Utz, N. S. Beesetty, R. Saint-Martin, A. Revcolevschi, C. Hess, B. Büchner, and H.-J. Grafe, *Spin gap in the single spin-1/2 chain cuprate $Sr_{1.9}Ca_{0.1}CuO_3$* , *Phys. Rev. B* **89**, 184410 (2014).
15. **F. Hammerath**, P. Bonfà, S. Sanna, G. Prando, R. De Renzi, Y. Kobayashi, M. Sato, and P. Carretta, *Poisoning effect of Mn in $LaFe_{1-x}Mn_xAsO_{0.89}F_{0.11}$: Unveiling a quantum critical point in the phase diagram of iron-based superconductors*, *Phys. Rev. B* **89**, 134503 (2014).
14. S.-H. Baek, L. M. Reinold, M. Graczyk-Zajac, R. Riedel, **F. Hammerath**, B. Büchner, and H.-J. Grafe, *Lithium dynamics in carbon-rich polymer-derived SiCN ceramics probed by nuclear magnetic resonance*, *Journal of Power Sources*, **253**, 342 (2014).

2013

13. **F. Hammerath**, U. Gräfe, T. Kühne, H. Kühne, P. L. Kuhns, A. P. Reyes, G. Lang, S. Wurmehl, B. Büchner, P. Carretta, and H.-J. Grafe, *Progressive slowing down of spin fluctuations in underdoped $LaFeAsO_{1-x}F_x$* , *Phys. Rev. B* **88**, 104503 (2013).

2012

12. S.-H. Baek, H.-J. Grafe, **F. Hammerath**, M. Fuchs, C. Rudisch, L. Harnagea, S. Aswartham, S. Wurmehl, J. van den Brink, and B. Büchner, *^{75}As NMR-NQR study in superconducting $LiFeAs$* , *Europ. J. Phys. B.* **85**, 159 (2012).

2011

11. V. Grinenko, K. Kikoin, S.-L. Drechsler, G. Fuchs, K. Nenkov, S. Wurmehl, **F. Hammerath**, G. Lang, H.-J. Grafe, B. Holzapfel, J. van den Brink, B. Büchner, and L. Schultz, *As-vacancies, local moments, and Pauli-limiting in $LaFeAs_{1-\delta}O_{0.9}F_{0.1}$ superconductors*, *Phys. Rev. B* **84**, 134516 (2011).
10. **F. Hammerath**, S. Nishimoto, H.-J. Grafe, A.U.B. Wolter, V. Kataev, P. Ribeiro, C. Hess, S.-L. Drechsler, and B. Büchner, *Spin Gap in the Zigzag Spin-1/2 Chain Cuprate $Sr_{0.9}Ca_{0.1}CuO_2$* , *Phys. Rev. Lett.* **107**, 017203 (2011).

2010

9. **F. Hammerath**, S.-L. Drechsler, H.-J. Grafe, G. Lang, G. Fuchs, G. Behr, I. Eremin, M. M. Korshunov, and B. Büchner, *Unusual disorder effects in superconducting $\text{LaFeAs}_{1-\delta}\text{O}_{0.9}\text{F}_{0.1}$ as revealed by ^{75}As NMR spectroscopy*, *Phys. Rev. B* **81**, 140504(R) (2010).
8. G. Lang, H.-J. Grafe, D. Paar, **F. Hammerath**, K. Manthey, G. Behr, J. Werner, and B. Büchner, *Nanoscale Electronic Order in Iron Pnictides*, *Phys. Rev. Lett.* **104**, 097001 (2010).
7. R. Klingeler, N. Leps, I. Hellmann, A. Popa, U. Stockert, C. Hess, V. Kataev, H.-J. Grafe, **F. Hammerath**, G. Lang, S. Wurmehl, G. Behr, L. Harnagea, S. Singh, and B. Büchner, *Local antiferromagnetic correlations in the iron pnictide superconductors $\text{LaFeAsO}_{1-x}\text{F}_x$ and $\text{Ca}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ as seen via normal-state susceptibility*, *Phys. Rev B* **81**, 024506 (2010).
6. G. Lang, H.-J. Grafe, **F. Hammerath**, K. Manthey, D. Paar, G. Behr, J. Werner, J. Hamann-Borrero, and B. Büchner, *Probing of the charge distribution in iron pnictides*, *Physica C* **470**, S454 - S455 (2010).
5. G. Fuchs, S.-L. Drechsler, N. Kozlova, M. Bartkowiak, G. Behr, K. Nenkov, H.-H. Klauss, J. Freudenberger, M. Knupfer, **F. Hammerath**, G. Lang, H.-J. Grafe, B. Büchner, and L. Schultz, *Evidence for Pauli-limiting behaviour at high fields and enhanced upper critical fields near T_c in several disordered FeAs based Superconductors*, *Physica C* **470**, S288 - S290 (2010).
4. D. Paar, H.-J. Grafe, G. Lang, **F. Hammerath**, K. Manthey, G. Behr, J. Werner, and B. Büchner, *NMR study of the electronic properties of superconducting $\text{LaO}_{0.9}\text{F}_{0.1}\text{FeAs}$* , *Physica C* **470**, S468 - S469 (2010).

2009

3. H.-J. Grafe, G. Lang, **F. Hammerath**, D. Paar, K. Manthey, K. Koch, H. Rosner, N. J. Curro, G. Behr, J. Werner, N. Leps, R. Klingeler, H.-H. Klauss, F. J. Litterst, and B. Büchner, *Electronic properties of $\text{LaO}_{1-x}\text{F}_x\text{FeAs}$ in the normal state probed by NMR/NQR*, *New J. Phys.* **11**, 035002 (2009).

2008

2. H.-J. Grafe, **F. Hammerath**, A. Vyalikh, G. Urbanik, V. Kataev, Th. Wolf, G. Khaliullin, and B. Büchner, *Contrasting spin dynamics in Zn- and Ni-doped $\text{NdBa}_2\text{Cu}_3\text{O}_{6+y}$ single crystals from Cu nuclear quadrupole resonance: Evidence for correlations between antiferromagnetism and pseudogap effects*, *Phys. Rev. B* **77**, 014522 (2008).

2007

1. H.-J. Grafe, **F. Hammerath**, Th. Wolf, and B. Büchner,
Cu nuclear quadrupole resonance study of $\text{NdBa}_2(\text{Cu,Zn,Ni})_3\text{O}_{7-\delta}$,
[Physica C **460 - 462**, 896-897 \(2007\).](#)

PhD Thesis

F. Hammerath, *Magnetism and Superconductivity in Iron-based Superconductors as Probed by Nuclear Magnetic Resonance*, complete reprint of the Ph.D. thesis, [Springer, Wiesbaden \(2012\).](#)

Invited Talks

2014

4. *The poisoning effect of Mn in $\text{LaFe}_{1-x}\text{Mn}_x\text{AsO}_{0.89}\text{F}_{0.11}$ – unveiling a quantum critical point in the phase diagram of iron-based superconductors*, Invited Talk at the Workshop "NMR, μSR , Mössbauer spectroscopies in the study of Fe-based and other unconventional high- T_c superconductors", IFW Dresden, 18.07. 2014, Dresden, Germany.

2013

3. *The poisoning effect of Mn in $\text{LaFe}_{1-x}\text{Mn}_x\text{AsO}_{0.89}\text{F}_{0.11}$ – a combined μSR and NMR Study*, Invited Talk for the IFF Department Seminar, IFW Dresden, 30.09. 2013, Dresden, Germany.
2. *Impurity Effects in $S=1/2$ Heisenberg Spin Chains as Probed by ^{63}Cu Nuclear Magnetic Resonance*, Invited Talk at the LOTHERM workshop "Advances in Quantum Magnets - Dynamics", September 2013, Kolymbari, Crete.

2011

1. *Unusual NMR Line Broadening and Spin Gap in the Zigzag $S=1/2$ Spin Chain Compound $\text{Sr}_{0.9}\text{Ca}_{0.1}\text{CuO}_2$* , Invited Talk at the Department of Physics of the University of Zagreb, November 2011, Zagreb, Croatia.

Conference Contributions - Talks

9. *Solid state NMR - a powerful tool to characterize nanoparticle assemblies*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2016, Regensburg, Germany.
8. *On the search for magnetic correlations in double perovskites - a local probe study*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2016, Regensburg, Germany.
7. *Microscopic insight into the poisoning effect of Mn in $\text{LaFe}_{1-x}\text{Mn}_x\text{AsO}_{0.89}\text{F}_{0.11}$* , spring meeting of the condensed matter division of the DPG (German Physical Society), April 2014, Dresden, Germany.
6. *Magnetic and Superconducting Phases in RE-doped Chrysenes*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2013, Regensburg, Germany.

5. *NMR investigations of spin fluctuations in underdoped $\text{LaO}_{1-x}\text{F}_x\text{FeAs}$* , spring meeting of the condensed matter division of the DPG (German Physical Society), March 2012, Berlin, Germany.
4. *Spin Gap in the $S=1/2$ Spin Chain Compound $\text{Sr}_{0.9}\text{Ca}_{0.1}\text{CuO}_2$* , 2nd International Workshop "Recent advances in broad-band solid-state NMR of correlated electronic systems", September 2011, Trogir, Croatia.
3. *Evidence for the opening of a spin gap in the Ca-doped SrCuO_2 probed by NMR*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2011, Dresden, Germany.
2. *Unusual disorder effects in $\text{LaO}_{0.9}\text{F}_{0.1}\text{FeAs}_{1-\delta}$ as revealed by NMR spectroscopy*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2010, Regensburg, Germany.
1. *Electronic properties of iron pnictides in the normal state as seen by NMR*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2009, Dresden, Germany.

Conference Contributions - Poster

8. *The poisoning effect of Mn in $\text{LaFe}_{1-x}\text{Mn}_x\text{AsO}_{0.89}\text{F}_{0.11}$ – unveiling a quantum critical point in the phase diagram of iron-based superconductors*, SCES 2014: International Conference on Strongly Correlated Electronic Systems, July 2014, Grenoble, France.
7. *The poisoning effect of Mn in $\text{LaFe}_{1-x}\text{Mn}_x\text{AsO}_{0.89}\text{F}_{0.11}$ – unveiling a quantum critical point in the phase diagram of iron-based superconductors*, Workshop IMS 2014: Itinerant Magnetism and Superconductivity, TU Dresden, June 2014, Dresden, Germany.
6. *Magnetic and Superconducting Phases in RE-doped Chrysenes*, Magnet 2013: 3rd National Magnetism Conference of the Italian Magnetism Society (AIMagn), February 2013, Naples, Italy.
5. *Nuclear Magnetic Resonance Studies on the New Iron Arenide Superconductors*, 1st International Workshop "Recent advances in broad-band solid-state NMR of correlated electronic systems", September 2010, Trogir, Croatia.
4. *Nuclear Magnetic Resonance Studies on the New Iron Arenide Superconductors*, 9th PSI Summer School on Condensed Matter Research: "Magnetic Phenomena", August 2010, Zoug, Switzerland.
3. *Evidence for the opening of a spin gap in the Ca-doped $S=1/2$ spin chain compound SrCuO_2 probed by NMR*, Korrelationstage MPI-PKS, March 2009, Dresden, Germany.

-
2. *Cu NMR studies of Ca doped SrCuO₂ spin chain compound*, spring meeting of the condensed matter division of the DPG (German Physical Society), March 2008, Berlin, Germany.
 1. *Cu NQR wipeout effect vs charge pseudogap in Zn/Ni doped NdBa₂Cu₃O_{6+y}*, I2CAM Cargese Summer School: "50th anniversary of BCS: From BCS to Exotic Superconductivity", July 2007, Cargese, France.