

AG Kuch
Scientific Activity Report 2019

Scientists:

Arruda, Lucas (until 30.09.)

Gelen, Ismet

Gördes, Jendrik (since 01.11.)

Golias, Evangelos

Hosseinifar, Rahil

Kipgen, Lalminthang

Kuch, Wolfgang

Kumberg, Ivar

Shinwari, Tauqir

Thakur, Sangeeta

Torres, Jorge

Villanueva, Melek (09.09.– 06.12.)

Bachelor, Master, and Diploma students:

Frischmuth, Karl (until 17.04.)

Ghaderi, Sakineh (since 25.03.)

Guillet, Quentin (since 02.10.)

Hadjadj, Sebastien (since 14.03.)

Rietz, Felix (18.02.–05.08.)

Wendler, André (until 24.05.)

Publications:

- L. M. Arruda, Md. E. Ali, M. Bernien, F. Nickel, J. Kopprasch, C. Czekelius, P. M. Oppeneer, and W. Kuch
Modifying the Magnetic Anisotropy of an Iron Porphyrin Molecule by an On-Surface Ring-Closure Reaction
J. Phys. Chem. C **123**, 14547–14555 (2019).
- S. Fragkos, R. Sant, C. Alvarez, E. Golias, J. Marquez-Velasco, P. Tsipas, D. Tsoutsou, S. Aminalragia-Giamini, E. Xenogiannopoulou, H. Okuno, G. Renaud, O. Rader, and A. Dimoulas
Topological band crossings in epitaxial strained SnTe
Phys. Rev. Mater. **3**, 104201-1–8 (2019).
- F. Huttmann, N. Rothenbach, S. Kraus, K. Ollefs, L. M. Arruda, M. Bernien, D. Thonig, A. Delin, J. Fransson, K. Kummer, N. B. Brookes, O. Eriksson, W. Kuch, T. Michely, and H. Wende
Europium Cyclooctatetraene Nanowire Carpets: A Low-Dimensional, Organometallic, and Ferromagnetic Insulator
J. Phys. Chem. Lett. **10**, 911–917 (2019).
- Y. A. Shokr, O. Sandig, M. Erkovan, B. Zhang, M. Bernien, A. A. Ünal, F. Kronast, U. Parlak, J. Vogel, and W. Kuch
Steering of magnetic domain walls by single ultrashort laser pulses
Phys. Rev. B **99**, 214404-1–8 (2019).

Presentations:

a) invited talks

W. Kuch

Cooperative effects in the spin-state switching of adsorbed spin-crossover molecules
3rd International Symposium on „Novel states in correlated condensed matter – from model systems to real materials“, Bad Neuenahr (18.–20.03.2019).

W. Kuch

Emergence of cooperativity in the spin-state switching of adsorbed Fe spin-crossover molecules
CECAM Workshop „What about U in nanoscale systems?“, Zaragoza (Spain) (21.–24.05.2019).

W. Kuch, Y. A. Shokr, O. Sandig, M. Erkovan, B. Zhang, M. Bernien, A. A. Ünal, S. Valencia, F. Kronast, U. Parlak, and J. Vogel

Manipulating magnetic domains by single ultrashort laser pulses
11th Joint BER II and BESSY II User Meeting, Berlin (04.–06.12.2019).

b) contributed talks

E. Golias, M. Krivenkov, A. Varykhalov, J. Sánchez-Barriga, and O. Rader
Band Renormalization of Blue Phosphorus on Au(111)

DPG Spring Meeting 2019 of the Condensed Matter Section, Regensburg (31.03.–05.04.2019).

H. Wende, F. Huttmann, N. Rothenbach, S. Kraus, K. Ollefs, L. M. Arruda, M. Bernien, D. Thonig, A. Delin, J. Fransson, K. Kummer, N. B. Brookes, O. Eriksson, W. Kuch, and T. Michely

Europium cyclooctatetraene nanowire carpets: a low-dimensional, organometallic ferromagnet

Workshop “Theory Meets Experiment in Low-Dimensional Structures with Correlated Electrons”, Prague (Czech Republic) (01.–04.07.2019).

H. Wende, F. Huttmann, N. Rothenbach, S. Kraus, K. Ollefs, L. M. Arruda, M. Bernien, D. Thonig, A. Delin, J. Fransson, K. Kummer, N. B. Brookes, O. Eriksson, W. Kuch, and T. Michely

Europium cyclooctatetraene nanowire carpets: a low-dimensional, organometallic ferromagnet

Joint European Magnetic Symposia (JEMS 2019), Uppsala (Sweden) (26.–30.08.2019).

F. Tucek, S. Ossinger, L. Kipgen, and W. Kuch

Light-induced spin-state switching of surface-adsorbed iron complexes

Photophysics of Molecular Magnets Conference 2019, Edinburgh (United Kingdom) (10.–11.10.2019).

c) posters

L. M. Arruda, M. Bernien, F. Nickel, N. Hatter, L. Kipgen, C. F. Hermanns, D. Krüger, T. Bißwanger, E. Schierle, E. Weschke, K. J. Franke, and W. Kuch
Surface- and ligand-dependent quenching of the spin magnetic moment of Co porphyrins
DPG Spring Meeting 2019 of the Condensed Matter Section, Regensburg (31.03.–05.04.2019).

R. Hosseinifar, I. Kumberg, S. Thakur, E. Golias, M. Fix, M. Albrecht, and W. Kuch
Investigation of ultrafast optical manipulation of magnetic order in GdFe alloys and in an AFM/FM bilayer
11th Joint BER II and BESSY II User Meeting, Berlin (04.–06.12.2019).

L. Kipgen, M. Bernien, A. L. Britton, H. Naggert, S. Ossinger, F. Nickel, L. M. Arruda, E. Golias, I. Kumberg, C. Luo, H. Ryll, F. Radu, F. Tuczek, and W. Kuch
Ligand-induced spin-state locking of a spin-crossover molecule on a graphite surface
DPG Spring Meeting 2019 of the Condensed Matter Section, Regensburg (31.03.–05.04.2019).

A. Nefedov, K. Müller, F. Radu, E. Golias, L. Heinke, W. Kuch, and C. Wöll
X-ray magnetic circular dichroism study of Cu-BDC SURMOF-2 structures
11th Joint BER II and BESSY II User Meeting, Berlin (04.–06.12.2019).

T. Tauqir, M. Y. Khan, I. Gelen, I. Kumberg, Y. A. Shokr, E. Golias, and W. Kuch
Influence of defects inside the ($\text{Ni}_x\text{Mn}_{1-x}$) antiferromagnetic layer on exchange bias in $\text{Ni}_x\text{Mn}_{1-x}/\text{Co}$ bilayers
DPG Spring Meeting 2019 of the Condensed Matter Section, Regensburg (31.03.–05.04.2019).

S. Thakur, D. Biswas, A. Singh, P. Sen, K. Srinivas, A. Thamizhavel, G. Di Santo, L. Petaccia, and K. Maiti
Probing topological superconductivity in indium-doped topological crystalline insulator using high-resolution photoemission spectroscopy
DPG Spring Meeting 2019 of the Condensed Matter Section, Regensburg (31.03.–05.04.2019).

J. Torres, L. Kipgen, S. Ossinger, S. Thakur, L. M. Arruda, R. Hosseinifar, E. Golias, F. Tuczek, and W. Kuch
Temperature-, light-, and x-ray-induced spin crossover of molecules adsorbed on a graphite surface
11th Joint BER II and BESSY II User Meeting, Berlin (04.–06.12.2019).

Degrees:

Arruda, Lucas M.

X-Ray Absorption Spectroscopy of Transition Metal and Lanthanide Magnetic Molecules
PhD degree, Freie Universität Berlin, 27.05.2019.

Frischmuth, Karl

Spin dynamics in layered samples consisting of ferromagnetic and antiferromagnetic materials

Master degree, Freie Universität Berlin, April 2019.

Kipgen, Lalminthang

X-Ray Investigation of Ultra-Thin Spin-Crossover Molecular Films

PhD degree, Freie Universität Berlin, 09.05.2019.

Rietz, Felix

A study on the influence of antiferromagnetic layers on the demagnetization dynamics of ferromagnetic layers on the femtosecond timescale

Bachelor degree, Freie Universität Berlin, August 2019.

Wendler, André

Charakterisierung von magnetischen Proben mit XMCD und Photoelektronen-Emissionsmikroskopie

Bachelor degree, Freie Universität Berlin, May 2019.