AG Kuch
Scientific Activity Report 2024

Scientists:

Awsaf, Chowdhury Shadman

Gördes, Jendrik

Grilli, Lorenzo (since 02.10.)

Hadjdaj, Sebastien (until 29.02.)

Hosseinifar, Rahil

Kuch, Wolfgang

Thakur, Sangeeta

Torres, Jorge

Walter, Marcel

Bachelor, Master, and Diploma students:

Heberer, Dennis (since 18.11.)

Kok, Zhen An (since 07.10.)

Li, Tingwei (until 31.10.)

Zenovic, Jasmin (since 14.10.)

Publications:

I. Gelen, T. Shinwari, I. Kumberg, S. E. Hadjadj, Y. A. Shokr, E. Golias, and W. Kuch
Growth of Mn_xAu_{1-x} films on Cu(001) and Ag(001) single-crystal substrates
Phys. Status Solidi B **261**, 2300518-1–9 (2024).

A. Ghafari, K. Fritsch, K. Meier-Kirchner, B. Ryll, L. Petaccia, S. Thakur, P. Hlawenka, A. Varykhalov, N. Mamedov, Z. Jahangirli, K. Wakita, and K. Habicht
Temperature Dependence of the Electronic Structure of TlInSe2 and Spin–Orbit Coupling
ACS Appl. Electron. Mater. **6**, 5536–5541 (2024).

P. M. Sheverdyaeva, G. Bihlmayer, S. Modesti, V. Feyer, M. Jugovac, G. Zamborlini, Ch. Tusche, Y.-J. Chen, X. L. Tan, K. Hagiwara, L. Petaccia, S. Thakur, A. K. Kundu, C. Carbone, and P. Moras
Giant Rashba-splitting of one-dimensional metallic states in Bi dimer lines on InAs(100)
Nanoscale **16**, 15815–15823 (2024).

C. Trommer, E. Kuhlemann, T. A. Engesser, M. Walter, S. Thakur, W. Kuch, and F. Tuczek
Spin crossover in dinuclear iron(II) complexes bridged by bis-bipyridine ligands: dimer effects on electronic structure, spectroscopic properties and spin-state switching
Dalton Trans. **53**, 9909–9920 (2024).

Presentations:

a) invited talks

W. Kuch
Ultrafast demagnetization of antiferromagnetic CoO measured by time-resolved x-ray magnetic linear dichroism
Universität Duisburg-Essen, Duisburg, Germany, 20.11.2024.

b) contributed talks

W. Kuch, C. S. Awsaf, S. Thakur, J. Gördes, M. Walter, N. Pontius, C. Schüßler-Langeheine, M. Weißenhofer, and P. M. Oppeneer
Ultrafast demagnetization of antiferromagnetic CoO measured by time-resolved x-ray magnetic linear dichroism
International Conference on Magnetism 2024 (ICM 2024), Bologna, Italy, 30.06.–05.07.2024.

c) posters

C. S. Awsaf, S. Thakur, M. Weißenhofer, M. Walter, J. Gördes, N Pontius, C. Schüßler-Langeheine, M. A. Mawass, P. M. Oppeneer, and W. Kuch
Element-resolved detection of ultrafast loss of magnetic order in epitaxial CoO/Fe bilayers
6th Ultrafast Magnetism Conference (UMC 2024), Berlin, Germany, 02.–06.09.2024.

J. Gördes, T. Shinwari, T. Li, A. Vereijken, C. Janzen, A. Ehresmann, and W.Kuch
Magneto-optical investigation of epitaxially grown Mn_2Au on Au-capped Nb(100)
87th Annual Conference of the DPG and DPG Spring Meeting of the Condensed Matter Section, Berlin, Germany, 17.–22.03.2024.

J. Gördes, T. Shinwari, T. Li, A. Vereijken, Ch. Janzen, A. Ehresmann, and W. Kuch
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International Conference on Magnetism 2024 (ICM 2024), Bologna, Italy, 30.06.–05.07.2024.

J. Gördes, I. Kumberg, C. S. Awsaf, M. Walter, T. Shinwari, S. Thakur, S. Sharma, M. A. Mawass, C. Schüßler-Langeheine, N. Pontius, and W. Kuch
Magnetization dynamics in magnetic trilayers with a wedged antiferromagnetic spacer layer at ultrafast timescales
6th Ultrafast Magnetism Conference (UMC 2024), Berlin, Germany, 02.–06.09.2024.

S. E. Hadjadj, C. González-Orellana, J. Lawrence, D. Bikaljević, M. Peña-Díaz, P. Gargiani, L. Aballe, J. Naumann, M. Á. Niño, M. Foerster, S. Ruiz-Gómez, S. Thakur, I. Kumberg, J. Taylor, J. Hayes, J. Torres, C. Luo, F. Radu, D. G. de Oteyza, W. Kuch, J. I. Pascual, C. Rogero, and M. Ilyn
Epitaxial growth and properties of sub-monolayer to multilayer $FeBr_2$ on Au(111)
87th Annual Conference of the DPG and DPG Spring Meeting of the Condensed Matter Section, Berlin, Germany, 17.–22.03.2024.

R. Hosseinifar, I. Kumberg, F. Steinbach, S. Thakur, S. E. Hadjadj, J. Gördes, M. Fix, J. M. Lendínez, C. Awsaf, M. Albrecht, F. Kronast, U. Atxitia, C. von Korff Schmising, and W.

Kuch
Studying all-optical magnetization switching of GdFe by double-pulse laser excitation
87th Annual Conference of the DPG and DPG Spring Meeting of the Condensed Matter Section, Berlin, Germany, 17.–22.03.2024.

R. Hosseinifar, I. Kumberg, F. Steinbach, S. Thakur, S. E. Hadjadj, J. Gördes, M. Fix, J. M. Lendínez, C. S. Awsaf, M. Albrecht, F. Kronast, U. Atxitia, C. von Korff Schmising, and Wolfgang Kuch
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6th Ultrafast Magnetism Conference (UMC 2024), Berlin, Germany, 02.–06.09.2024.

J. Torres, S. Thakur, S. Ossinger, J. Grunwald, I. Kumberg, E. Golias, C. W. A. Trommer, S. Hadjadj, M. Walter, J. Gördes, R. Hosseinifar, P.-C. Liu, T. Shinwari, C. Luo, L. Kipgen, F. Radu, F. Tuczek, and W. Kuch
Submonolayer films of tridentate spin-crossover molecules with high transition temperatures deposited on graphite
87th Annual Conference of the DPG and DPG Spring Meeting of the Condensed Matter Section, Berlin, Germany, 17.–22.03.2024.

M. Walter, T. Al Said, C. W. A. Trommer, T. Adam, F. Tuczek, K. Holldack, W. Kuch, and S. Thakur
Probing the magnetic behavior of the metastable high-spin state achieved by light-induced excited spin-state trapping in Fe (II) complexes
87th Annual Conference of the DPG and DPG Spring Meeting of the Condensed Matter Section, Berlin, Germany, 17.–22.03.2024.

M. Walter, T. Al Said, C. W. A. Trommer, T Adam, E. F. Kuhlemann, F. Tuczek, K. Holldack, W. Kuch, and S. Thakur
THz-EPR Study of High-Spin Iron(II) Poly(pyrazolyl)borate Complexes as Models for New Spincrossover Compounds
Summer School “Spectroscopy and Electronic Structure of Transition Metal Complexes”, Mülheim, Germany, 22.–28.09.2024.

d) events for the public

J. Gördes and T. Li:
Eis im Winter und im Sommer
Workshop at Girl’s Day, Fachbereich Physik der Freien Universität Berlin, 25.04.2024.

Degrees:

Hadjadj, Sebastien
Growth and characterization of new 2D magnetic materials
PhD degree, Freie Universität Berlin, 03.06.2024.