

AG Kuch
Scientific Activity Report 2018

Scientists:

Arruda, Lucas

Erkovan, Mustafa (03.04.–08.06.)

Gelen, Ismet

Golias, Evangelos

Hosseinfar, Rahil (since 18.07.)

Kipgen, Lalminthang

Kuch, Wolfgang

Kumberg, Ivar

Manzoor, Alina (until 02.03.)

Nickel, Fabian (until 28.02.)

Shinwari, Tauqir

Thakur, Sangeeta (since 13.07.)

Torres, Jorge (since 26.11.)

Bachelor, Master, and Diploma students:

Bach, Jan (until 28.02.)

Brunett, Frederic (11.01.–28.06.)

Frischmuth, Karl (since 16.04.)

Memmen, Janka (until 27.04.)

Wendler, André (since 07.12.)

Publications:

E. Golias, M. Krivenkov, A. Varykhalov, J. Sánchez-Barriga, and O. Rader
Band Renormalization of Blue Phosphorus on Au(111)
Nano Lett. **18**, 6672–6678 (2018).

L. Kipgen, M. Bernien, S. Ossinger, F. Nickel, A. J. Britton, L. M. Arruda, H. Naggert, Chen Luo, C. Lotze, H. Ryll, F. Radu, E. Schierle, E. Weschke, F. Tucek, and W. Kuch
Evolution of cooperativity in the spin transition of an iron(II) complex on a graphite surface
Nat. Commun. **9**, 2984-1–8 (2018).

A. Manzoor, M. A. Khan, and W. Kuch
Correlation between ferromagnetic resonance and densification of RE substituted polycrystalline ferrites
Ceram. Int. **44**, 13328–13334 (2018).

F. Nickel, M. Bernien, U. Lipowski, and W. Kuch
Optical differential reflectance spectroscopy for photochromic molecules on solid surfaces
Rev. Sci. Instrum. **89**, 033113-1–9 (2018).

F. Nickel, M. Bernien, D. Krüger, J. Miguel, A. J. Britton, L. M. Arruda, L. Kipgen, and W. Kuch
Highly Efficient and Bidirectional Reversible Photochromism of Spirooxazine on Au(111)
J. Phys. Chem. C **122**, 8031–8036 (2018).

J. Song and W. Kuch
The Growth and Crystalline Structure of Ultrathin Mn Films on Ni(111)
Phys. Stat. Sol. B **255**, 1800173-1–7 (2018).

K. Zhao, E. Golias, Q. H. Zhang, M. Krivenkov, A. Jesche, L. Gu, O. Rader, I. I. Mazin, and P. Gegenwart
Quantum oscillations and Dirac dispersion in the BaZnBi₂ semimetal guaranteed by local Zn vacancy order
Phys. Rev. B **97**, 115166-1–7 (2018).

Presentations:

a) invited talks

W. Kuch

Controlling magnetic molecules on surfaces

Gemeinsames Seminar des Physikalischen Instituts und des Instituts für Festkörperphysik, Karlsruher Institut für Technologie, Karlsruhe (09.01.2018).

W. Kuch

Switchable spin-crossover molecules on surfaces

Workshop „From surface science to nanotechnology“, Instituto IMDEA Nanociencia, Madrid (Spain) (22.–23.02.2018).

W. Kuch

X-ray absorption spectroscopy for the investigation of magnetic molecules on surfaces

Shanghai Synchrotron Radiation Facility (SSRF), Shanghai (PR China) (24.08.2018).

W. Kuch

Controlling magnetic molecules on surfaces

Fudan University, Shanghai (PR China) (27.08.2018).

W. Kuch

Controlling magnetic molecules on surfaces

Physikalisches Kolloquium, Universität Augsburg (12.11.2018).

b) contributed talks

S. Kraus, F. Huttmann, N. Rothenbach, K. Ollefs, L. M. Arruda, N. Atodiresei, V. Caciuc, K. Kummer, N. B. Brookes, W. Kuch, H. Wende, and T. Michely

Nanostructures of Cyclooctatetraene with Rare-Earth Metals on Graphene

4th European Workshop on Epitaxial Graphene and 2D Materials (EWEG2D'2018), Salamanca (Spain) (21.–24.05.2018).

S. Kraus, F. Huttmann, N. Rothenbach, K. Ollefs, L. M. Arruda, N. Atodiresei, V. Caciuc, K. Kummer, N. B. Brookes, W. Kuch, H. Wende, and T. Michely

Nanostructures of Cyclooctatetraene with Rare-Earth Metals on Graphene

On-Surface Synthesis International Workshop (OSS-18), Sant Feliu de Guixols (Spain) (24.–28.09.2018).

F. Nickel, M. Bernien, D. Krüger, A. J. Britton, L. M. Arruda, L. Kipgen, and W. Kuch

Reversible photoswitching of spiropyran molecules adsorbed on metal surfaces

10th Brazilian/German Workshop on Applied Surface Science, Bad Dürkheim (23.–28.09.2018).

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

Steering of domain walls in Co/Fe₂₅Gd₇₅ bilayers by ultrashort laser pulses

2018 Joint Meeting of the DPG and EPS Condensed Matter Divisions, Berlin (11.–16.03.2018).

c) posters

L. M. Arruda, M. Bernien, N. Hatter, F. Nickel, L. Kipgen, C. F. Hermanns, D. Krüger, T. Bißwanger, P. Loche, B. W. Heinrich, E. Schierle, E. Weschke, K. J. Franke, and W. Kuch
Surface- and ligand-dependent quenching of the spin magnetic moment of Co porphyrins
10th Brazilian/German Workshop on Applied Surface Science, Bad Dürkheim (23.–28.09.2018).

E. Golias, M. Krivenkov, A. Varykhalov, J. Sánchez-Barriga, and O. Rader
Band Renormalization of Blue Phosphorus on Au(111)
10th Joint BER II and BESSY II User Meeting, Berlin (05.–07.12.2018).

J. Hall, T. Wekking, F. Huttmann, S. Kraus, N. Rothenbach, K. Ollefs, L. M. Arruda, N. B. Brookes, G. Schönhoff, J. Berges, T. Wehling, W. Kuch, H. Wende, and T. Michely
Growth and structure of mono- to few-layer vanadium disulphide on graphene on Ir(111)
2018 Joint Meeting of the DPG and EPS Condensed Matter Divisions, Berlin (11.–16.03.2018).

L. Kipgen, M. Bernien, S. Ossinger, F. Nickel, A. J. Britton, L. M. Arruda, H. Naggert, C. Luo, C. Lotze, H. Ryll, F. Radu, E. Schierle, E. Weschke, F. Tucek, and W. Kuch
Emergence of cooperativity in the coverage-dependent spin transition of an Fe(II) complex on a graphite surface
German Conference for Research with Synchrotron Radiation, Neutrons and Ion Beams at Large Facilities (SNI 2018), Garching (17.–19.09.2018).

L. Kipgen, M. Bernien, S. Ossinger, F. Nickel, A. J. Britton, L. M. Arruda, H. Naggert, C. Luo, C. Lotze, H. Ryll, F. Radu, E. Schierle, E. Weschke, F. Tucek, and W. Kuch
Evolution of cooperativity in the spin transition of iron(II) complex on a graphite surface
10th Joint BER II and BESSY II User Meeting, Berlin (05.–07.12.2018).

F. Nickel, M. Bernien, K. Kraffert, D. Krüger, L. M. Arruda, L. Kipgen, J. Miguel, A. J. Britton, and W. Kuch
Light-induced reversible switching of spiropyranes adsorbed on surfaces
10th Joint BER II and BESSY II User Meeting, Berlin (05.–07.12.2018).

S. Ossinger, H. Naggert, L. Kipgen, M. Bernien, W. Kuch, and F. Tucek
Fe(II) SCO Complexes: Cooperativity in Bulk and in Vacuum-Deposited Films
9th Münster Symposium on Cooperative Effects in Chemistry, Münster (16.03.2018).

S. Ossinger, H. Naggert, L. Kipgen, T. Jasper-Toennies, M. Bernien, W. Kuch, R. Berndt, and F. Tucek
Fe(II)SCO Complexes: Thin Films on Bi(111) vs Au(111) & Cooperativity in Vacuum-Deposited Films
20th JungChemikerForum-Frühjahrssymposium, Konstanz (21.24.03.2018).

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
Joint European Magnetic Symposia (JEMS) 2018, Mainz (03.–07.09.2018).

T. Tauqir, M. Y. Khan, Ikram Ullah, M. Sajjad, Izran Ullah, Y. A. Shokr, and W. Kuch
Influence of Bulk and Interface Defects in the Antiferromagnetic Layer for the Exchange-Bias Effect
2018 Joint Meeting of the DPG and EPS Condensed Matter Divisions, Berlin (11.–16.03.2018).

d) external lectures

W.Kuch
Magnetism in reduced dimensions and spin transport
FIST Lecture Series, Fudan University, Shanghai (PR China) (22.–29.08.2018)

e) presentations for the public

W. Kuch
Festplatte, quo vadis? Die Zukunft der magnetischen Datenspeicherung
Lange Nacht der Wissenschaften, Berlin, public talk at Fachbereich Physik der Freien Universität Berlin, 09.06.2018.

Degrees:

Bach, Jan

Synchrotrondetektierete ferromagnetische Resonanz an organisch/metallischen Heterostrukturen

Bachelor degree, Freie Universität Berlin, February 2018.

Brunnett, Frederic

Die Charakterisierung von anti-/ferromagnetischen Doppelschichten durch Reflexion weicher Röntgenstrahlung

Bachelor degree, Freie Universität Berlin, July 2018.

Memmen, Janka

Exchange Bias of Partially Defected Ferromagnetic/Antiferromagnetic Layer Systems

Bachelor degree, Freie Universität Berlin, April 2018.

Nickel, Fabian

Switching of Photochromic Molecules on Surfaces

PhD degree, Freie Universität Berlin, 15.11.2018.