

AG Kuch
Scientific Activity Report 2021

Scientists:

Gelen, Ismet

Gördes, Jendrik

Golias, Evangelos (until 31.01.)

Hadjdaj, Sebastien

Hosseinifar, Rahil

Kuch, Wolfgang

Kumberg, Ivar

Shinwari, Tauqir

Thakur, Sangeeta

Torres, Jorge

Walter, Marcel (since 01.06.)

Bachelor, Master, and Diploma students:

Awsaf, Chowdhury Shadman (since 18.01.)

Ghaderi, Sakineh

Gustafson, Travis (since 11.01.)

Hayes, Jack (until 31.10.)

Liu, Pin-Chi (since 06.05.)

Publications:

E. Goliias, I. Kumberg, I. Gelen, S. Thakur, J. Gördes, R. Hosseinifar, Q. Guillet, J. K. Dewhurst, S. Sharma, C. Schüßler-Langeheine, N. Pontius, and W. Kuch
Ultrafast optically induced ferromagnetic state in an elemental antiferromagnet
Phys. Rev. Lett. **126**, 107202-1–6 (2021).

L. Kipgen, M. Bernien, F. Tuzek, and W. Kuch
Spin-Crossover Molecules on Surfaces: From Isolated Molecules to Ultrathin Films
Adv. Mater. **33**, 2008141-1–14 (2021).

S. O. Parreiras, D. Moreno, B. Cirera, M. A. Valbuena, J. I. Urgel, M. Paradinas, M. Panighel, F. Ajejas, M. A. Niño, J. M. Gallego, M. Valvidares, P. Gargiani, W. Kuch, J. I. Martínez, A. Mugarza, J. Camarero, R. Miranda, P. Perna, and D. Écija
Tuning the magnetic anisotropy of lanthanides on a metal substrate by metal–organic coordination
Small **17**, 2102753-1–11 (2021).

T. Shinwari, I. Gelen, Y. A. Shokr, I. Kumberg, Ikramullah, M. Sajjad, W. Kuch, and M. Y. Khan
Bulk and interfacial effects in the Co/Ni_xMn_{100-x} exchange-bias system due to creation of defects by Ar⁺ sputtering
Phys. Status Solidi RRL **15**, 2100195-1–9 (2021).

S. Thakur, E. Goliias, I. Kumberg, K. Senthil Kumar, R. Hosseinifar, J. Torres-Rodríguez, L. Kipgen, C. Lotze, L. M. Arruda, C. Luo, F. Radu, M. Ruben, and W. Kuch
Thermal- and Light-Induced Spin-Crossover Characteristics of a Functional Iron(II) Complex at Submonolayer Coverage on HOPG
J. Phys. Chem. C **125**, 13925–13932 (2021).

Presentations:

a) invited talks

W. Kuch

Ultrafast spin transfer in layered magnetic heterostructures

International Conference On Nanoscience And Nanotechnology (ICONN 21), SRM Institute of Science and Technology, Chennai, India, 01.–03.02.202 (online).

W. Kuch

Manipulating the spin state of molecules on surfaces

COSMICS Workshop on “Magnetic Molecules on Surfaces”, Université de Paris. France, 08.–09.03.2021 (online).

b) contributed talks

T. Shinwari, I. Gelen, Y. A. Shokr, I. Kumberg, I. Ullah, M. Sajjad, M. Y. Khan, and W. Kuch

Bulk and interfacial effects in the $\text{Co/Ni}_x\text{Mn}_{100-x}$ exchange-bias system due to creation of defects by Ar^+ sputtering

84. Annual Meeting of DPG and DPG Meeting of the Condensed Matter Section, 27.09.–01.10.2021 (online).

c) posters

I. Gelen, T. Shinwari, E. Golias, Y. A. Shokr, and W. Kuch

Scanning tunneling microscopy study of submonolayer growth of $\text{Mn}_x\text{Au}_{1-x}$ on $\text{Cu}(001)$
Virtual DPG Spring Meeting of the Surface Science Division, 01.–04.03.2021 (online).

R. Hosseinifar, I. Kumberg, E. Golias, S. Thakur, K. Frischmuth, F. Kronast, M. Fix, M. Albrecht, and W. Kuch

Investigation of ultrafast laser-induced toggle-switching and domain wall motion in GdFe
84. Annual Meeting of DPG and DPG Meeting of the Condensed Matter Section, 27.09.–01.10.2021 (online).

I. Kumberg, E. Golias, I. Gelen, R. Hosseinifar, S. Thakur, T. Shinwari, Q. Guillet, J. Gördes, C.-S. Schüßler-Langeheine, J. K. Dewhurst, N. Pontius, S. Sharma, P. M. Oppeneer, and W. Kuch

Ultrafast spin transfer in metallic antiferromagnetic/ferromagnetic heterostructures

1st Joint Workshop of CRC 1242 & TRR 227 “Exciting dynamics: How electrons, spins, and phonons interact”, 09.–18.02.2021 (online).

T. Shinwari, I. Gelen, M. Villanueva, I. Kumberg, Y. A. Shokr, and W. Kuch

Growth, structure, and magnetic properties of artificially layered NiMn in contact to ferromagnetic Co on $\text{Cu}_3\text{Au}(001)$

84. Annual Meeting of DPG and DPG Meeting of the Condensed Matter Section, 27.09.–01.10.2021 (online).

J. Torres, L. Kipgen, S. Ossinger, S. Thakur, C. W. A. Trommer, I. Kumberg, R. Hosseinifar, E. Golias, S. Hadjadj, J. Gördes, C. Luo, K. Chen, F. Radu, F. Tucek, and W. Kuch
Light-, temperature-, and x-ray-induced spin-crossover transition of molecules adsorbed on a graphite surface

84. Annual Meeting of DPG and DPG Meeting of the Condensed Matter Section, 27.09.–01.10.2021 (online).

S. Thakur, E. Golias, I. Kumberg, K. S. Kumar, R. Hosseinifar, J. Torres, L. Kipgen, C. Lotze, L. M. Arruda, F. Radu, M. Ruben, and W. Kuch
Thermal- and Light-Induced Spin-Crossover Characteristics of a Functional Iron(II) Complex at Submonolayer Coverage on HOPG

84. Annual Meeting of DPG and DPG Meeting of the Condensed Matter Section, 27.09.–01.10.2021 (online).

Degrees:

Hayes, Jack

Growth and Characterization of Magnetic 2D Van der Waals Materials

Master degree, Freie Universität Berlin, November 2021.