

AG Kuch
Activity Report 2005

Scientists:

Abrudan, Radu M.

Bernien, Matthias (since 16.04.)

Fukumoto, Keiki

Kuch, Wolfgang

Kurde, Julia (since 01.12.)

Lenz, Kilian

Miguel, Jorge (since 01.09.)

Piantek, Marten (since 15.09.)

Wende, Heiko (since 01.10.)

Zander, Sebastian (since 01.05.)

Publications:

A. Chassé, W. Kuch, M. Kotsugi, Xingyu Gao, F. Offi, S. Imada, S. Suga, H. Daimon, and J. Kirschner

Magnetism-induced symmetry breaking in photoelectron diffraction patterns
Phys. Rev. B **71**, 014444-1–10 (2005).

K. Fukumoto, W. Kuch, J. Vogel, J. Camarero, S. Pizzini, F. Offi, Y. Pennec, M. Bonfim, A. Fontaine, and J. Kirschner

Mobility of domain wall motion in the permalloy layer of a spin-valve-like Fe₂₀Ni₈₀/Cu/Co trilayer
J. Magn. Magn. Mater. **293**, 863–871 (2005).

Xingyu Gao, Hai Xu, A. T. S. Wee, W. Kuch, C. Tieg, and Shouguo Wang

Magnetic circular dichroism study of Fe/Co/Cu(001) using electron yield x-ray absorption spectroscopy with different probe depths
J. Appl. Phys. **97**, 103527-1–6 (2005).

S. Konings, J. Miguel, J. Luigjes, H. Schlatter, H. Luigjes, J. B. Goedkoop, and V. Gadgil
Lock in of magnetic stripe domains to pinning lattices produced by focused ion-beam patterning

J. Appl. Phys. **98**, 054306-1–4 (2005).

K. Lenz, E. Kosubek, K. Baberschke, H. Wende, J. Herfort, H.-P. Schönherr, and K. H. Ploog
Magnetic properties of Fe₃Si/GaAs(001) hybrid structures
Phys. Rev. B **72**, 144411-1–5 (2005).

A. Scherz, C. Sorg, M. Bernien, N. Ponpandian, K. Baberschke, H. Wende, and P. J. Jensen
Importance of giant spin fluctuations in two-dimensional magnetic trilayers
Phys. Rev. B **72**, 054447-1–9 (2005).

A. Scherz, E. K. U. Gross, H. Appel, C. Sorg, K. Baberschke, H. Wende, and K. Burke
Measuring the kernel of time-dependent density functional theory with X-ray absorption spectroscopy of 3d transition metals
Phys. Rev. Lett. **95**, 253006-1–4 (2005).

T. Tolinski, K. Lenz, J. Lindner, K. Baberschke, A. Ney, T. Hesjedal, C. Pampuch, L. Däweritz, R. Koch, and K. H. Ploog
Epitaxial MnAs Films Studied by Ferromagnetic and Spin Wave Resonance
in: *Local-Moment Ferromagnets: Unique Properties for Modern Applications*, edited by M. Donath and W. Nolting, Lecture Notes in Physics Vol. **678**, 97–109, Springer, Berlin (2005).

J. Vogel, W. Kuch, J. Camarero, K. Fukumoto, Y. Pennec, S. Pizzini, M. Bonfim, F. Petroff, A. Fontaine, and J. Kirschner
Interplay between magnetic anisotropy and interlayer coupling in nanosecond magnetization reversal of spin-valve trilayers
Phys. Rev. B **71**, 060404(R)-1–4 (2005).

J. Vogel, W. Kuch, R. Hertel, J. Camarero, K. Fukumoto, F. Romanens, S. Pizzini, M. Bonfim, F. Petroff, A. Fontaine, and J. Kirschner
Influence of domain wall interactions on nanosecond switching in magnetic tunnel junctions
Phys. Rev. B **72**, 220402(R)-1–4 (2005).

J. Wang, W. Kuch, L. I. Chelaru, F. Offi, and M. Kotsugi
Influence of exchange bias coupling on the single-crystalline FeMn ultrathin film
Appl. Phys. Lett. **86**, 122504-1–3 (2005).

W. H. Wang, M. Przybylski, W. Kuch, L. I. Chelaru, J. Wang, Y. F. Lu, J. Barthel, H. Meyerheim, and J. Kirschner
Magnetic properties and spin polarization of Co₂MnSi Heusler alloy thin films epitaxially grown on GaAs(001)
Phys. Rev. B **71**, 144416-1–14 (2005).

W. H. Wang, M. Przybylski, W. Kuch, L. I. Chelaru, J. Wang, Y. F. Lu, J. Barthel, and J. Kirschner
Spin polarization of single-crystalline Co₂MnSi films grown by PLD on GaAs(001)
J. Magn. Magn. Mater. **286**, 336–339 (2005).

Presentations:

a) Invited talks

K. Fukumoto

Dynamics of magnetization reversal in magnetic multilayered systems
Tokyo Institute of Technology, Tokyo, Japan, 16.09.2005.

K. Fukumoto

Dynamics of magnetization reversal in magnetic multilayered systems
SPring-8, Sayo-cho, Hyogo, Japan, 16.09.2005.

W. Kuch

Magnetic imaging study of coupling across a single-crystalline antiferromagnetic film: The role of atomic scale interface roughness
338. WE-Heraeus-Seminar „Nanomagnetism: New Insights with Synchrotron Radiation“,
Bad Honnef, 05.–07.01.2005.

W. Kuch

Untersuchung einkristalliner FeMn-Filme auf Cu(001)
Forschungsseminar "Wechselwirkung schneller Ionen mit Festkörpern" (AG Winter),
Humboldt-Universität zu Berlin, 26.01.2005.

W. Kuch

Photoelectron emission microscopy with synchrotron radiation: Insights into layered magnetic systems
Meeting of the Scientific Advisory Board, Max-Planck-Institut für Mikrostrukturphysik,
Halle, 03.–04.02.2005.

W. Kuch

Introduction to Magnetism
International Workshop on Ultrafast Time-resolved Soft X-ray Science, Zeuthen,
27.–29.04.2005.

W. Kuch

“Insights” into layered magnetic structures
International Symposium on Spin-Polarized Processes at Surfaces, Halle, 02.–04.06.2005.

W. Kuch

Studying layered magnetic structures by photoabsorption spectromicroscopy
13th General Conference of the European Physical Society, Bern, Switzerland,
11.–15.07.2005.

W. Kuch

Influence of local magnetic interactions on the static and dynamic properties of magnetic multilayered systems
Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland, 15.07.2005.

W. Kuch

Magnetic imaging by LEEM, X-PEEM, X-ray microscopy, and X-ray holography
European School on Magnetism “New Experimental Approaches in Magnetism”, Constanta,
Romania, 07.–16.09.2005.

W. Kuch

Magnetism under the microscope: "Insight" into layered magnetic structures
National University of Singapore, Department of Physics, Singapore, 24.10.2005.

W. Kuch

Static and dynamic element specific domain structures in ultrathin magnetic layers
Workshop on Nanomagnetism, Eleventh Users' Meeting of the National Synchrotron
Radiation Research Center, Hsinchu, Taiwan, 25.–26.10.2005.

W. Kuch

Growth and electronic properties of epitaxial Co_2MnSi thin films on GaAs(001)
3rd International Symposium "Thin Films of Heusler Compounds, a Challenge", Gemmenich,
Belgium, 11.–12.11.2005.

W. Kuch

Magnetism under the microscope: "Insight" into layered magnetic structures
12th Latin American Congress of Surface Science and its Applications (12° CLACSA),
Angra dos Reis, Brazil, 05.–09.12.2005.

K. Lenz

Determination of the magnetic anisotropy in $\text{Fe}_3\text{Si}/\text{GaAs}(001)$ using ferromagnetic resonance
Paul-Drude-Institut für Festkörperelektronik, Berlin, 3.5.2005.

J. Miguel

Resonant X rays, Coherence, and Magnetism
2nd AUSE Meeting (Spanish Synchrotron Users Network), El Escorial, Spain, 29.09.2005.

J. Vogel, W. Kuch, K. Fukumoto, J. Camarero, F. Romanens, R. Hertel, M. Bonfim, S.
Pizzini, F. Petroff, A. Fontaine, and J. Kirschner
Influence of topography and interlayer interactions on the free layer switching in magnetic
tunnel junctions
338. WE-Heraeus-Seminar „Nanomagnetism: New Insights with Synchrotron Radiation“,
Bad Honnef, 05.–07.01.2005.

J. Vogel, W. Kuch, R. Hertel, J. Camarero, K. Fukumoto, F. Romanens, S. Pizzini, M.
Bonfim, F. Petroff, A. Fontaine, and J. Kirschner
Nanosecond magnetization dynamics studied with time- and layer resolved magnetic domain
imaging
Meeting of the Scientific Advisory Committee of BESSY, Berlin, 13.10.2005.

H. Wende

Oxygen surfactant assisted growth investigated with x-ray absorption spectroscopy
Forschungsseminar "Wechselwirkung schneller Ionen mit Festkörpern" (AG Winter),
Humboldt-Universität zu Berlin, 07.12.2005.

H. Wende

Magnetische Nanostrukturen im neuen Licht
Sonderkolloquium des Fachbereichs Physik der Universität Duisburg-Essen, Duisburg,
19.12.2005.

b) contributed talks

K. Fukumoto, W. Kuch, J. Vogel, J. Camarero, S. Pizzini, F. Romanens, A. Fontaine, and J. Kirschner

Dynamics of magnetic domain wall motion: Dependence on wall energy, mobility, and zeeman energy

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, 04.–09.03.2005.

K. Fukumoto, W. Kuch, J. Vogel, R. Hertel, J. Camarero, S. Pizzini, F. Romanens, A. Fontaine, and J. Kirschner

Influence of domain wall stray fields on the magnetization reversal of a FeNi/Al₃O₂/Co tunnel junction

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, 04.–09.03.2005.

K. Lenz, E. Kosubek, K. Baberschke, J. Herfort, H.-P. Schönherr, and K. H. Ploog
Magnetic Properties of Fe₃Si/GaAs(001) thin films

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, 04.–09.03.2005.

K. Lenz, E. Kosubek, T. Tolinski, K. Baberschke, and A. Janossy
Limitations of the Landau-Lifshitz-equation and spin-pump effects in magnetic nanostructures

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, 04.–09.03.2005.

J. Miguel, J. Camarero, F. Romanens, S. Pizzini, J. Vogel, F. Garcia, J. Sort, B. Dieny, N. B. Brookes, and J. B. Goedkoop

Role of uncompensated spins in perpendicular exchange-coupled systems

International Workshop „X-Ray Spectroscopy of Magnetic Solids“ (XRMS 2005), Villigen, Switzerland, 18.–20.10.2005.

F. Romanens, J. Vogel, S. Pizzini, M. Bonfim, W. Kuch, K. Fukumoto, R. Hertel, J. Camarero, and F. Petroff

Couches minces et nanostructures magnétiques

10^{ème} Colloque Louis Néel “Couches Minces et Nanostructures Magnétiques”, Dourdan, France, 21.–23.09.2005.

F. Romanens, J. Vogel, W. Kuch, R. Hertel, K. Fukumoto, J. Camarero, S. Pizzini, M. Bonfim, F. Petroff, and J. Kirschner

Influence of domain wall interactions on nanosecond switching in magnetic tunnel junctions

50th Magnetism and Magnetic Materials Conference (MMM), San Jose, CA, U.S.A.,

30.10.–03.11.2005.

C. Tieg, W. Kuch, R. Abrudan, S. Wang, and J. Kirschner

Morphology, structure and magnetic properties of Ni_xMn_{1-x} films and Co/Ni_xMn_{1-x} bilayers grown on Cu(001)

23rd European Conference on Surface Science (ECOSS 23), Berlin, 04.–09.09.2005.

C. Tieg, S. Wang, W. Kuch, and J. Kirschner

Morphology, structure and magnetic properties of Ni_xMn_{1-x} and Ni_xMn_{1-x}/Co bilayers grown on Cu(001)

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, 04.–09.03.2005.

c) Posters

R. Abrudan, W. Kuch, and J. Kirschner

Growth, structure and magnetic properties of epitaxial Fe/CoO bilayers
2nd International Workshop on "Oxidic Interfaces", Wittenberg, 24.–26.02.2005.

R. Abrudan, W. Kuch, and J. Kirschner

Growth, structure and magnetic properties of epitaxial Fe/CoO bilayers
23rd European Conference on Surface Science (ECOSS 23), Berlin, 04.–09.09.2005.

R. Abrudan, W. Kuch, M. Bernien, J. Miguel, C. Tieg, and J. Kirschner

Growth, structure and magnetic properties of epitaxial Fe/CoO bilayers
BESSY User's Meeting 2005, Berlin, 01.–02.12.2005.

K. Fukumoto, W. Kuch, J. Vogel, J. Camarero, S. Pizzini, F. Romanens, M. Bonfim, A. Fontaine, and J. Kirschner

Dynamics of magnetic domain wall motion: Dependence on wall energy, mobility, and Zeeman energy
338. WE-Heraeus-Seminar „Nanomagnetism: New Insights with Synchrotron Radiation“, Bad Honnef, 05.–07.01.2005.

K. Fukumoto, W. Kuch, J. Vogel, J. Camarero, S. Pizzini, F. Romanens, M. Bonfim, A. Fontaine, and J. Kirschner

Dynamics of domain wall motion in magnetic tunnel junctions studied by time and layer resolved magnetic domain imaging
International Workshop on Ultrafast Time-resolved Soft X-ray Science, Zeuthen, 27.–29.04.2005.

K. Fukumoto, W. Kuch, J. Vogel, S. Pizzini, F. Romanens, J. Camarero, M. Bonfim, and J. Kirschner

Dynamics of magnetic domain wall motion after nucleation: Dependence on the wall energy
International Workshop „X-Ray Spectroscopy of Magnetic Solids“ (XRMS 2005), Villigen, Switzerland, 18.–20.10.2005.

K. Fukumoto, J. Vogel, W. Kuch, R. Hertel, J. Camarero, F. Romanens, S. Pizzini, M. Bonfim, F. Petroff, A. Fontaine, and J. Kirschner

Influence of domain wall interactions on nanosecond switching in magnetic tunnel junctions
BESSY User's Meeting 2005, Berlin, 01.–02.12.2005.

S. Konings, J. Miguel, J. Camarero, J. Vogel, and J. B. Goedkoop

Magnetization reversal of an anisotropy-patterned thin film studied by X-ray resonant magnetic scattering
International Workshop „X-Ray Spectroscopy of Magnetic Solids“ (XRMS 2005), Villigen, Switzerland, 18.–20.10.2005.

S. Konings, J. Miguel, J. B. Goedkoop

X-ray transmission microscopy of anisotropy engineering magnetic thin films
FOM Meeting 2005, Veldhoven, The Netherlands, 13.–14.12.2005.

K. Lenz, E. Kosubek, K. Baberschke, J. Herfort, H.-P. Schönherr, and K. H. Ploog
Magnetic properties of Fe₃Si/GaAs(001) hybrid structures
Poznan Conference on Magnetism, Poznan, Poland, 24.–27.6.2005.

J. Miguel, J. Camarero, M. Bonfim, J. Vogel, N. B. Brookes, and J. B. Goedkoop
Time-resolved XRMS study of magnetic domain nucleation
International Workshop „X-Ray Spectroscopy of Magnetic Solids“ (XRMS 2005), Villigen, Switzerland, 18.–20.10.2005.

J. Miguel, J. Camarero, J. Vogel, F. Garcia, F. Romanens, S. Pizzini, J. Sort, N. B. Brookes, B. Dieny, and J. B. Goedkoop
Role of uncompensated spins in perpendicular exchange coupled systems
FOM Meeting 2005, Veldhoven, The Netherlands, 13.–14.12.2005.

M. A. Niño, J. Camarero, J. J. de Miguel, R. Miranda, L. Gómez, J. Ferrón, R. Abrudan, C. Tieg, Sh. Wang, and W. Kuch
Growth and properties of thin-film fcc-FeCu random alloys
International Symposium on Spin-Polarized Processes at Surfaces, Halle, 02.–04.06.2005.

M. A. Niño, J. Camarero, J. J. de Miguel, R. Miranda, R. Abrudan, C. Tieg, Sh. Wang, W. Kuch, and J. Kirschner
Magnetic properties of artificial bimetallic FeCu thin films alloys
2nd AUSE Meeting (Spanish Synchrotron Users Network), El Escorial, Spain, 29.09.2005.

C. Tieg, S. Wang, W. Kuch, and J. Kirschner
Observation of induced Mn and Ni magnetic moments in Co/NiMn/Cu(001)
338. WE-Heraeus-Seminar „Nanomagnetism: New Insights with Synchrotron Radiation“, Bad Honnef, 05.–07.01.2005.

C. Tieg, R. Abrudan, K. Fukumoto, S. Wang, and W. Kuch
Growth, structure, and magnetic properties of Ni_xMn_{1-x} films and Ni_xMn_{1-x}/Co bilayers on Cu(001)
Meeting of the Scientific Advisory Board, Max-Planck-Institut für Mikrostrukturphysik, Halle, 03.–04.02.2005.

J. Vogel, W. Kuch, J. Camarero, K. Fukumoto, F. Romanens, M. Bonfim, S. Pizzini, Y. Pennec, F. Petroff, R. Hertel, J. Kirschner, and A. Fontaine
Time and layer resolved magnetic domain imaging using X-PEEM
Elettra XIII User's Meeting, Trieste, Italy, 14.–16.12.2005.

W. H. Wang, W. Kuch, J. Barthel, and M. Przybylski
Magnetic properties and spin polarization of Co₂MnSi Heusler alloy thin films epitaxially grown on GaAs(001)
Meeting of the Scientific Advisory Board, Max-Planck-Institut für Mikrostrukturphysik, Halle, 03.–04.02.2005.

W.-H. Wang, M. Przybylski, W. Kuch, J. Barthel, and J. Kirschner
Magnetic properties and spin polarization of Co₂MnSi Heusler alloy thin films epitaxially grown on GaAs(001)
European Materials Research Society Spring Meeting (E-MRS), Strasbourg, France, 31.05.–03.06.2005.

Degrees:

Keiki Fukumoto

Magnetization reversal dynamics in magnetically coupled trilayer systems

PhD, Fachbereich Physik, Freie Universität Berlin, 28.06.2005.

Kilian Lenz

Magnetische Anisotropie und Dämpfungsmechanismen in ultradünnen 3d-Ferromagneten:
eine FMR-Studie

PhD, Fachbereich Physik, Freie Universität Berlin, 12.07.2005.