

18 Publications

18.1 Elementary particles and their interactions

18.1.1 ArDM

Articles

- **Development of wavelength shifter coated reflectors for the ArDM argon dark matter detector**
V. Boccone *et al.*, Journal of Instrumentation **4** (2009) P06001.
- **ArDM, a 1t liquid argon detector for dark matter searches**
C. Amsler, Proc. of Science PoS (EPS-HEP 2009) 110.
- **The ArDM project: A Liquid Argon TPC for Dark Matter Detection**
V. Boccone, J. Phys.: Conference Series **160** (2009) 012032.
- **Test in Liquid Argon of the Light Readout System for the ArDM Experiment**
V. Boccone, IEEE Nucl. Science Symp. Conf. Rec., Orlando N25-153 (2009).

Articles in press

- **Development and test in liquid argon of the light readout system for the ArDM experiment**
V. Boccone, Proc. of the Tenth Conf. on the Intersections of Part. and Nucl. Phys. (CIPANP 2009), San Diego.
- **The ArDM, a ton-scale liquid argon experiment for direct Dark Matter detection**
P. Otyugova, Proc. of the 5th Patras Workshop on Axions, WIMPs and WISPs, Durham (2009).
- **The ArDM - a ton-scale liquid argon experiment for direct Dark Matter detection**
P. Otyugova, Proc. of the Invisible Universe Int. Conf., Paris (2009).
- **The Argon Dark Matter Experiment (ArDM)**
C. Regenfus, Proc. of the Conf. on Topics in Astroparticle and Underground Physics (TAUP 09), Rome, Prep. arXiv:0912.2962v1 (physics.ins-det).

Lectures

- C. Amsler: **ArDM, a large liquid argon detector for dark matter searches**
Seminar, Tata Institute of Fundamental Research (TIFR), Mumbai, 9 November 2009.
- C. Amsler: **From antihydrogen production to dark matter searches, some experimental aspects**
Colloquium, Tata Institute of Fundamental Research (TIFR), Mumbai, 11 November 2009.
- V. Boccone: **Development and test in liquid argon of the light readout system for the ArDM experiment**
Tenth Conference on the Intersections of Part. and Nucl. Phys. (CIPANP 2009), San Diego, 27 May 2009.

- P. Otyugova: **The ArDM (CERN RE 18) – a ton-scale liquid argon experiment for direct Dark Matter detection**
Invisible Universe International Conference 2009, Paris, 1 July 2009.
- P. Otyugova: **The ArDM, a ton-scale liquid argon experiment for direct Dark Matter detection**
5th Patras Workshop on Axions, WIMPs and WISPs, 16 July 2009.
- C. Regenfus: **The Argon Dark Matter Experiment (ArDM)**
Conf. on Topics in Astroparticle and Underground Physics (TAUP 09), Rome, 1 July 2009.
- C. Regenfus: **1 ton liquid argon TPC/calorimeter for direct detection of DM**
Presentation at the Scientific Committee meeting, Laboratorio Subterráneo de Canfranc, 22 October 2009.

18.1.2 ATHENA

Lecture

- C. Regenfus: **The AEGIS experiment at CERN: Dropping antihydrogen atoms**
SPS/ ÖPG meeting, Innsbruck, 2 September 2009.

18.1.3 CDMS

Articles

- **Search for Axions with the CDMS Experiment**
CDMS Collaboration, Phys. Rev. Lett. 103, 141802 (2009).
- **Analysis of the low-energy electron-recoil spectrum of the CDMS experiment**
CDMS Collaboration, Phys. Rev. D 81, 042002 (2010).
- **Results from the Final Exposure of the CDMS II Experiment**
CDMS Collaboration, Science, 1186112 (2010).

Lectures

- S. Arrenberg: **Search for Dark Matter with the CDMS Experiment**
WIN09, Perugia, Italy, Sep. 16 2009.
- S. Arrenberg: **Search for Dark Matter with the CDMS Experiment**
SPS meeting 2009, Innsbruck, Sep. 4 2009.
- T. Bruch: **CDMS-II to SuperCDMS: WIMP search at a zeptobarn**
PATRAS 09, Durham, UK, July 13 2009.

18.1.4 CMS

Articles

- **Mechanical design and material budget of the CMS barrel pixel detector**
C. Amsler *et al.*, Journal of Instrumentation **4** (2009) P05003.
- **Stand-alone cosmic muon reconstruction before installation of the CMS silicon strip tracker**
CMS Tracker Collaboration, Journal of Instrumentation **4** (2009) P05004.
- **Commissioning of the CMS experiment and the cosmic run at four tesla**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03001.
- **Performance of the CMS Level-1 trigger during commissioning with cosmic ray muons and LHC beams**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03002.
- **Performance of the CMS drift-tube chamber local trigger with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03003.
- **Fine synchronization of the CMS muon drift-tube local trigger using cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03004.
- **Commissioning of the CMS High-Level Trigger with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03005.
- **CMS data processing workflows during an extended cosmic ray run**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03006.
- **Commissioning and performance of the CMS pixel tracker with cosmic ray muons**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03007.
- **Commissioning and performance of the CMS silicon strip tracker with cosmic ray muons**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03008.
- **Alignment of the CMS silicon tracker during commissioning with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03009.
- **Performance and operation of the CMS electromagnetic calorimeter**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03010.
- **Time reconstruction and performance of the CMS electromagnetic calorimeter**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03011.
- **Performance of the CMS hadron calorimeter with cosmic ray muons and LHC beam data**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03012.
- **Performance of CMS hadron calorimeter timing and synchronization using test beam, cosmic ray, and LHC beam data**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03013.
- **Identification and filtering of uncharacteristic noise in the CMS hadron calorimeter**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03014.

- **Performance of the CMS drift tube chambers with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03015.
- **Calibration of the CMS drift tube chambers and measurement of the drift velocity with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03016.
- **Performance study of the CMS barrel resistive plate chambers with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03017.
- **Performance of the CMS cathode strip chambers with cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03018.
- **Aligning the CMS muon chambers with the muon alignment system during an extended cosmic ray run**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03019.
- **Alignment of the CMS muon system with cosmic-ray and beam-halo muons**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03020.
- **Precise mapping of the magnetic field in the CMS barrel yoke using cosmic rays**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03021.
- **Performance of CMS muon reconstruction in cosmic-ray events**
CMS Collaboration, Journal of Instrumentation **5** (2010) T03022.
- **Measurement of the muon stopping power in lead tungstate**
CMS Collaboration, Journal of Instrumentation **5** (2010) P03007.
- **Transverse-momentum and pseudorapidity distributions of charged hadrons in pp collisions at $\sqrt{s} = 0.9$ and 2.36 TeV**
CMS Collaboration, Journal of High Energy Physics **02** (2010) 041.
- **Algorithms for b-Jet Identification at CMS**
A. Schmidt, Proc. of Science PoS (EPS-HEP 2009) 439.
- **Experience with CMS pixel software commissioning**
V. Chiochia, Proc. of Science PoS (VERTEX 2008) 010.
- **Heavy Flavor Physics at CMS and ATLAS**
L. Wilke, Proc. of Moriond Conf. on QCD and High Energy Interactions, Ed. THE GIOI (Vietnam), 2009, p. 147.
- **Searches for New Phenomena at CMS and ATLAS**
T. Rommerskirchen, Proc. of Moriond Conf. on QCD and High Energy Interactions, Ed. THE GIOI (Vietnam), 2009, p. 171.

Article in press

- **Study of the B_s meson with forthcoming LHC data at CMS**
B. Millán Mejías, Proc. of the VIII Latin Am. Symp. on Nucl. Phys. and Appl., Santiago de Chile.

CMS notes and reports

- **Algorithms for b-Jet identification in CMS**
A. Schmidt *et al.*, CMS Note PAS BTV-09-001.
- **Search strategy for exclusive multi-jet events from supersymmetry at CMS**
T. Rommerskirchen *et al.*, CMS PAS SUS-09-001.
- **Algorithms for Identification of jets containing b -quarks**
C. Saout and A. Schmidt, CMS Times, 7 September 2009.

PhD theses

- **Simulation and beam test measurements of the CMS pixel detector**
E. Alagöz, Inaugural Dissertation, Universität Zürich, 2009.
- **Early observation of t -Quark in Single-Leptonic $t\bar{t}$ Decays at CMS**
D. Tsirigkas, Inaugural Dissertation, Universität Zürich, 2009.
- **Study of the B_s -Meson with the first LHC Data**
L. Wilke, Inaugural Dissertation, Universität Zürich, 2009.

Invited Lectures

- V. Chiochia: **Study of the CMS experiment at the Large Hadron Collider**
SPS/ ÖPG meeting, Innsbruck, 3 September 2009.
- C. Favaro: **The phase 1 upgrade of the CMS silicon pixel detector**
Contributed talk, CHIPP PhD Winter School 2010, Monte Verità, Ascona, 24 January 2010.
- M. Ivova Rikova: **Measurements of the Lorentz angle in the CMS barrel pixel detector with collision and cosmic data**
Contributed talk, CHIPP PhD Winter School 2010, Monte Verità, Ascona, 24 January 2010.
- A. Jaeger: **Commissioning of the CMS pixel detector using first data**
Contributed talk, CHIPP PhD Winter School 2010, Monte Verità, Ascona, 24 January 2010.
- B. Millán Mejías: **Study of the B_s meson with first LHC data at CMS**
Invited talk, Proc. of the VIII Latin Am. Symp. on Nucl. Phys. and Appl., Santiago de Chile, 18 December 2009.
- S. de Visscher: **Overview of the pixel performance results from 900 GeV run and program for 7 TeV**
CMS Plenary talk, 16 March 2010.
- S. de Visscher: **Unconventional phenomenology of a minimal two-Higgs-doublet model**
Spring plenary meeting of the GDR Terascale meeting, Saclay, 30 March 2010.

18.1.5 CTA

Bachelor thesis

- **Wireless Short Range Network for the Active Mirror Control of the CTA Experiment**
Roman Gredig, Bachelor thesis, August 2009.

Conference contributions

- **Two design studies in the framework of the Cherenkov Telescope Array (CTA)**
Arno Gadola, Joint annual meeting of the SPS, ÖPG, ÖGAA, 3 September 2009.
- **Solid Light Concentrators for Cherenkov Astronomy**
Isabel Braun *et al.*, Proceedings of the 31st International Cosmic Ray Conference, Lodz, 7 - 15 July 2009.

18.1.6 D0

Article (based on the Master thesis of Christophe Salzmann)

- **Relative rates of B meson decays into $\psi(2S)$ and J/ψ mesons**
V. M. Abazov *et al.*, D0 Collaboration, Phys. Rev. **D79**, 111102 (2009).

18.1.7 DARWIN

Invited Lectures

- L. Baudis: **DARWIN: DARK matter WImp search with Noble liquids**
WONDER Workshop on next dark matter experimental researches at LNGS, Gran Sasso Laboratory, March 23 2010.
- L. Baudis: **DARWIN: DARK matter WImp search with Noble liquids**
Ninths UCLA Symposium on Sources and Detection of Dark Matter and Dark Energy, Marina del Rey, February 26 2010.

18.1.8 DIRAC

Articles

- **Observation of πK -atoms with DIRAC-II**
Y. Allkofer, *Hyperfine Interactions* **193** (2009) 39.
- **Experimental evidence for πK -atoms**
C. Amsler, *Proc. of Science PoS (EPS-HEP 2009)* 078.
- **Evidence for $K\pi$ atoms with DIRAC**
A. Benelli, *Proc. of Science PoS (CD09)* 008.

Note

- **Kaon/proton separation with the aerogel**
A. Benelli and V. Yazkov, *DIRAC note* 09-07.

Lecture

- A. Benelli: **Evidence for $K\pi$ atoms with DIRAC**
6th Int. Workshop on Chiral Dynamics, Bern, 6 July 2009.

18.1.9 GERDA

Lectures

- F. Froborg: **The Calibration System for the GERDA Experiment**
DPG, Bonn, Germany, Mar. 19 2010.
- R. Santorelli: **The GERDA experiment: A search for neutrinoless double beta decay**
SPS meeting 2009, Innsbruck, Sep 4 2009.

Posters

- **Development of a low neutron emission source for the GERDA experiment**
M. Tarka, SLAC Summer Institute 2009, CA, USA, Aug 3-14 2009.
- **Calibration System for GERDA**
F. Froborg, SLAC Summer Institute 2009, Menlo Park, CA, USA, Aug 3-14 2009.

18.1.10 H1

Articles

- **Strangeness Production at Low Q^2 in Deep Inelastic ep Scattering at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C61** (2009) 185.
- **Events with Isolated Leptons and Missing Transverse Momentum and Measurement of W Production at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C64** (2009) 251.
- **Inclusive Photoproduction of ρ^0 , K^{*0} and ϕ Mesons at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B673** (2009) 119.
- **General Search for New Phenomena at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B674** (2009) 257.
- **Measurement of the Inclusive ep Scattering Cross Section at Low Q^2 and x at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C63** (2009) 625.
- **Search for Excited Quarks in ep Collisions at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B678** (2009) 335.
- **A Precision Measurement of the Inclusive ep Scattering Cross Section at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C64** (2009) 561.
- **Jet Production in ep Collisions at High Q^2 and Determination of α_S Using Full HERA Data**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C65** (2010) 363.
- **Search for Single Top Quark Production at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B678** (2009) 450.
- **Measurement of the Charm and Beauty Structure Function using the H1 Vertex Detector at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C65** (2010) 89.
- **Observation of Hadronic Final State Charge Asymmetry in High Q^2 Deep-Inelastic Scattering at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B681** (2009) 125.
- **Multi-Leptons with High Transverse Momentum at HERA**
H1- and ZEUS-Collaboration***, F.D. Aaron *et al.*, JHEP **10** (2009) 013.
- **Deeply Virtual Compton Scattering and its Beam Charge Asymmetry in $e^\pm p$ Collisions at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B681** (2009) 391.
- **Prompt Photons in Photoproduction at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C66** (2010) 17.
- **Diffraction Electroproduction of ρ and ϕ Mesons at HERA**
H1-Collaboration, F.D. Aaron *et al.*, JHEP **05** (2010) 032.
- **Events with Isolated Leptons and Missing Transverse Momentum and Measurement of W -Production at HERA**
H1- and ZEUS-Collaboration, F.D. Aaron *et al.*, JHEP **03** (2010) 035.

- **Combined Measurement and QCD Analysis of the Inclusive $e^\pm p$ Neutral Scattering Cross-Sections at HERA**
H1- and ZEUS-Collaboration, F.D. Aaron *et al.*, JHEP **01** (2010) 109.
- **Measurement of $D^{*\pm}$ Meson Production Cross Section and $F_2^{c\bar{c}}$ at High Q^2 in Electron-Proton Scattering at HERA**
H1-Collaboration, F.D. Aaron *et al.*, Phys.Lett. **B686** (2010) 91.
- **Jet Production in ep Collisions at Low Q^2 and Determination of α_S**
H1-Collaboration, F.D. Aaron *et al.*, Eur.Phys.J. **C67** (2010) 1.

Article in print

- **Measurement of Leading Neutron Production in Deep-Inelastic Scattering at HERA**
H1-Collaboration, F.D. Aaron *et al.*, DESY 09 – 185, arXiv:1001.0532 (hep-ex), Eur.Phys.J. **C** (2010).

PhD thesis

- **Prompt Photon Production in Photoproduction at HERA**
Krzysztof Nowak, PhD thesis, Universität Zürich, October 2009.

Lectures

- Krzysztof Nowak: **Prompt Photons in Photoproduction**
XVII Int. Workshop on Deep Inelastic Scattering and Related Subjects, Madrid, Spain, 26-30 April 2009.
- Katharina Müller: **Photon Structure in Photoproduction**
Int. Conf. on the Structure and Interactions of the Photon, Hamburg, Germany, 11-15 May 2009.
- Krzysztof Nowak: **Prompt photons in DIS and γp**
2009 Europhysics Conf. on High Energy Physics, Krakow, Poland, 16-22 July 2009.

18.1.11 LHCb

Bachelor and Master theses

- **Noise Investigations for the Tracker Turicensis of the LHCb Experiment**
Viktor Hangartner, Master thesis, Universität Zürich, August 2009.
- **Setting up an LHCb TT-Detector Test Stand**
Gabriel Landolt, Bachelor thesis, August 2009.
- **Wireless Short Range Network for the Active Mirror Control of the CTA Experiment**
Roman Gredig, Bachelor Thesis, August 2009.

- **Online Monitoring for the Silicon Tracker of the LHCb Experiment**
Nicola Chiapolini, Master Thesis, Juli 2009.

Invited Lectures

- **First Collisions in LHC**
Jeroen van Tilburg, Workshop on the New, the Rare and the Beautiful, University of Zurich, 6 - 8 January 2010.
- **LHCb: Preparation for LHC beam**
Jeroen van Tilburg, CHIPP annual meeting 2009, Appenberg, August 2009.

Conference contributions

- **Commissioning and performance of the LHCb Silicon Tracker**
Jeroen van Tilburg, Proceedings of the the Vienna Conference on Instrumentation, March 2010.
- **You are so beautiful: Rare b decays at LHCb**
Michel De Cian and Angela Büchler, Joint Annual Meeting OePG/SPS, Innsbruck, 2 - 4 September 2009.
- **Alignment of the LHCb Silicon Tracker using LHC beam injection data**
Christophe Salzmann, Joint Annual meeting OePG/SPS, Innsbruck, 2 - 4 September 2009.
- **LHCb silicon detector alignment with first LHC beam induced tracks**
Christophe Salzmann, 3rd LHC Detector Alignment Workshop, CERN, 15 - 16 June 2009.
- **Probing low-x with Drell-Yan events at LHCb**
J. Anderson, XVII International Workshop on Deep-Inelastic Scattering and Related Subjects, Madrid, Spain, 26 - 30 April 2009.
- **The LHCb Silicon Tracker Commissioning and First Data**
Angela Büchler, IEEE Nuclear Science Symposium, Orlando, Florida, USA, 25 - 31 October 2009.

18.1.12 PEN

Article

- **New Precise Measurement of the Pion Weak Form Factors in $\pi^+ \rightarrow e^+\nu\gamma$ Decay**
M. Bychkov *et al.*, Phys. Rev. Lett. **103**, 051802 (2009).

Conference Proceedings

- **PEN: a sensitive search for non-(V-A) weak processes**
D. Pocanic *et al.*, PEN Collaboration, Proc. of PANIC08, Eilat, 928-933 (2009).
- **PEN experiment: A Precise measurement of the $\pi^+ \rightarrow e^+\nu$ decay branching fraction**
D. Pocanic *et al.*, PEN Collaboration, AIP Conf.Proc. 1182, 698-701 (2009).

18.1.13 UCN

PhD thesis

- **Towards a new measurement of the neutron electric dipole moment**
Andreas Knecht, PhD Thesis, Universität Zürich, November 2009.

18.1.14 XENON

Article in press

- **Spatially uniform calibration of a liquid xenon detector at low energies using 83m-Kr**
A. Manalaysay, T. Marrodan Undagoitia, A. Askin, L. Baudis, A. Behrens, A. Kish, O. Lebeda, D. Venos, Review of Scientific Instruments.

PhD thesis

- **Response of liquid xenon to low-energy ionizing radiation and its use in the XENON10 Dark Matter search**
A. Manalaysay, PhD thesis, Universität Zürich, December 2009.

Invited Lecture

- L. Baudis: **The Physics of the Universe**
SpaceX and Caltech, Los Angeles, January 9, 2010.

18.1.15 Miscellaneous

Reports

- **Physics at a future Neutrino Factory and super-beam facility**
ISS Physics Working Group, A. Bandyopadhyay *et al.* (A. van der Schaaf), Rept. Prog. Phys. **72** 106201 (2009).

Invited Lectures

- F. Froberg: **Neutrinoless Double Beta Decay**
"The New, the Rare and the Beautiful" Workshop in Zurich, Jan. 07 2010.
- T. Marrodan Undagoitia: **Future detectors for low energy neutrino astronomy: LAGUNA, LENA and Hano-hano**
Neutrino Champagne, Rheims, France, Oct. 21 2009.
- T. Marrodan Undagoitia: **Search for dark matter with liquid xenon**
E15 Seminar, München, July 21 2009.
- A. Manalaysay: **Improved understanding of liquid xenon's response in dark matter searches**
TAUP 2009, Rome, July 1 2009.
- L. Baudis: **Dark matter: overview of terrestrial, non-accelerator experiments; DARWIN**
LAUNCH 2009, Heidelberg, November 10 2009.
- L. Baudis: **Direct searches for dark matter**
Physics Colloquium, IFAE UA Barcelona, October 5 2009.
- L. Baudis: **Direct Dark Matter Searches: an Overview**
CHIPP Plenary meeting, Appenberg, August 25 2009.
- L. Baudis: **WIMPs**
Summary Talk, 5th Patras Workshop on Axions, WIMPs and WISPs, Durham University, July 17 2009.
- L. Baudis: **Direct Searches for Cold Dark Matter in the Milky Way**
XXIemes Rencontres de Blois, Blois, June 23 2009.
- L. Baudis: **Direct Dark Matter Searches**
rapporteur talk, New Opportunities in the Physics Landscape at CERN, CERN, May 11-13 2009.
- T. Bruch: **The dark connection to the LHC**
International Conference on Neutrino Physics in the LHC Era, Luxor, Egypt, Nov. 18 2009.

18.1.16 Outreach

Lectures

- L. Baudis: **The Unbearable Lightness of Neutrinos**
zurich.minds, Zurich, December 16 2009.
- L. Baudis: **Die dunkle Seite des Universums**
Weizmann Symposium, University of Zurich, November 25 2009.
- L. Baudis: **Das Universum in 50 Minuten**
Montagsforum, Dornbirn, May 18 2009.

18.2 Condensed matter

18.2.1 Superconductivity and Magnetism

Articles

- **Evidence for Kosterlitz-Thouless and three-dimensional XY critical behavior in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$**
S. Weyeneth, T. Schneider, and E. Giannini, Phys. Rev. B **79**, 214504-1-8 (2009).
- **Single crystals of $\text{LnFeAsO}_{1-x}\text{F}_x$ (Ln=La, Pr, Nd, Sm, Gd) and $\text{Ba}_{1-x}\text{Rb}_x\text{Fe}_2\text{As}_2$: Growth, structure and superconducting properties**
J. Karpinski, N.D. Zhigadlo, S. Katrych, Z. Bukowski, P. Moll, S. Weyeneth, H. Keller, R. Puzniak, M. Tortello, D. Daghero, R. Gonnelli, I. Maggio-Aprile, Y. Fasano, Ø. Fischer, K. Rogacki, and B. Batlogg, Physica C **469**, 370-380 (2009).
- **Zero-field superfluid density in a d-wave superconductor evaluated from muon-spin-rotation experiments in the vortex state**
R. Khasanov, Takeshi Kondo, S. Strässle, D.O.G. Heron, A. Kaminski, H. Keller, S.L. Lee, and Tsunehiro Takeuchi, Phys. Rev. B **79**, 180507(R)-1-4 (2009).
- **Anomalous asymmetry in the Fermi surface of the high-temperature superconductor $\text{YBa}_2\text{Cu}_4\text{O}_8$ revealed by angle-resolved photoemission spectroscopy**
Takeshi Kondo, R. Khasanov, Y. Sassa, A. Bendounan, S. Pailhes, J. Chang, J. Mesot, H. Keller, N.D. Zhigadlo, M. Shi, Z. Bukowski, J. Karpinski, and A. Kaminski, Phys. Rev. B **80**, 100505(R)-1-4 (2009)
- **Controlled oxygen vacancies and space correlation with Cr^{3+} in SrTiO_3**
F. La Mattina, J.G. Bednorz, S.F. Alvarado, A. Shengelaya, K. A. Müller, and H. Keller, Phys. Rev. B **80**, 075122-1-8 (2009).
- **Synthesis, crystal structure, and chemical stability of the superconductor FeSe_{1-x}**
E. Pomjakushina, K. Conder, V. Pomjakushin, M. Bendele, and R. Khasanov, Phys. Rev. B **80**, 024517-1-7 (2009).

- **Coexistence of incommensurate magnetism and superconductivity in $\text{Fe}_{1+y}\text{Se}_x\text{Te}_{1-x}$**
R. Khasanov, M. Bendele, A. Amato, P. Babkevich, A.T. Boothroyd, A. Cervellino, K. Conder, S.N. Gvasaliya, H. Keller, H.-H. Klauss, H. Luetkens, V. Pomjakushin, E. Pomjakushina, and B. Roessli, *Phys. Rev. B* **80**, 140511-1-4 (2009).
- **Local Electron-Lattice Interactions in High-Temperature Cuprate Superconductors**
Hugo Keller and Annette Bussmann-Holder, *Advances in Condensed Matter Physics* **2010**, 1-17 (2009).
- **Comparative study of the pressure effects on the magnetic penetration depth in electron- and hole-doped cuprate superconductors**
D. Di Castro, R. Khasanov, A. Shengelaya, K. Conder, D.-J. Jang, M.-S. Park, S.-I. Lee, and H. Keller, *J. Phys.: Condens. Matter* **21**, 275701 (5pp) (2009).
- **Superconductivity in Fe and As Based Compounds: A Bridge Between MgB_2 and Cuprates**
A. Bussmann-Holder, A. Simon, H. Keller, and A.R. Bishop, *J. Supercond. Nov. Magn.* **23**, 365-369 (2010).
- **Pressure Induced Static Magnetic Order in Superconducting FeSe_{1-x}**
M. Bendele, A. Amato, K. Conder, M. Elender, H. Keller, H.-H. Klauss, H. Luetkens, E. Pomjakushina, A. Raselli, and R. Khasanov, *Phys. Rev. Lett.* **104**, 087003-1-4 (2010).
- **Evolution of Two-Gap Behavior of the Superconductor FeSe_{1-x}**
R. Khasanov, M. Bendele, A. Amato, K. Conder, H. Keller, H.-H. Klauss, H. Luetkens, and E. Pomjakushina, *Phys. Rev. Lett.* **104**, 087004-1-4 (2010).
- **Magnetic excitations of $\text{Fe}_{1+y}\text{Se}_x\text{Te}_{1-x}$ in magnetic and superconductive phases**
P. Babkevich, M. Bendele, A. T. Boothroyd, K. Conder, S. N. Gvasaliya, R. Khasanov, E. Pomjakushina, and B. Roessli, *J. Phys.: Condens. Matter* **22**, 142202-1-6 (2010).
- **Novel carboxymethyl chitin nanoparticles for cancer drug delivery applications**
A. Dev, J. C. Mohan, V. Sreeja, H. Tamura, G. R. Patzke, F. Hussain, S. Weyeneth, S. V. Nair, and R. Jayakumar, *Carbohydrate Polymers* **79**, 1073-1079 (2010).
- **Testing polaron coherence and the pairing symmetry in cuprate superconductors by local probe methods**
A. Bussmann-Holder, H. Keller, J. Mustre de Leon, A. Simon, A.R. Bishop, K.A. Müller, *J. Supercond. Nov. Magn.* **23**, 295-299 (2010).

Article in press

- **Bulk superconductivity at 2.6 K in undoped RbFe_2As_2**
Z. Bukowski, S. Weyeneth, R. Puzniak, J. Karpinski, and B. Batlogg, *Physica C*.

PhD thesis

- **Anisotropic Properties and Critical Behavior of High-Temperature Superconductors**
S. Weyeneth, PhD thesis of the University of Zurich, 2009.

Conference reports

- **Temperature Dependent Anisotropy of Novel Iron-Based Superconductors**
S. Weyeneth, R. Puzniak, N.D. Zhigadlo, Z. Bukowski, S. Katrych, J. Karpinski, and H. Keller, Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, 26-28 August, 2009.
- **Temperature Dependent Anisotropy of Novel Iron-Pnictide Superconductors**
S. Weyeneth, R. Puzniak, N.D. Zhigadlo, Z. Bukowski, S. Katrych, J. Karpinski, and H. Keller, 9th International Conference on Materials and Mechanisms of Superconductivity, Tokyo, Japan, 7-12 September, 2009.
- **Superconductivity and Magnetism in Cuprate Heterostructures Studied by Low Energy μ SR**
B.M. Wojek, E. Morenzoni, D.G. Eshchenko, T. Prokscha, A. Suter, E. Koller, E. Treboux, Ø. Fischer, and H. Keller, DPG Frühjahrstagung der Sektion Kondensierte Materie (SKM), Dresden, Germany, March 22-27, 2009.
- **Magnetism and Interface Superconductivity in Metal-Insulator $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ superlattices**
A. Suter, E. Morenzoni, T. Prokscha, B.M. Wojek, H. Luetkens, G. Nieuwenhuys, A. Gozar, G. Logvenov, and I. Bozovic, Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, August 26-28, 2009.
- **Diamagnetic Response in LSCO Heterostructures**
E. Morenzoni, B.M. Wojek, A. Suter, I. Bozovic, G. Logvenov, T. Prokscha, H. Keller, and Ø. Fischer, Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, August 26-28, 2009.
- **Magnetism and Interface Superconductivity in Metal-Insulator $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ superlattices**
A. Suter, E. Morenzoni, T. Prokscha, B.M. Wojek, H. Luetkens, G. Nieuwenhuys, A. Gozar, G. Logvenov, and I. Bozovic, Joint Users' Meeting at PSI 2009, Villigen, October 12-13, 2009.
- **Diamagnetic Response in LSCO Heterostructures**
E. Morenzoni, B.M. Wojek, A. Suter, I. Bozovic, G. Logvenov, T. Prokscha, H. Keller, and Ø. Fischer, Joint Users' Meeting at PSI 2009, Villigen, October 12-13, 2009.
- **Low energy μ SR as a new local probe technique to study photo-induced phenomena in thin films and heterostructures**
T. Prokscha, K.H. Chow, D.G. Eshchenko, H. Luetkens, E. Morenzoni, G. Nieuwenhuys, Z. Salman, R. Scheuermann, A. Suter, and B.M. Wojek, Joint Users' Meeting at PSI 2009, Villigen, October 12-13, 2009.
- **Local proximity studies of normal-superconductor bilayers by LE- μ SR and β -NMR**
E. Morenzoni, A. Suter, B.M. Wojek, E. Kirk, R.F. Kiefl, W.A. MacFarlane, G.D. Morris, W. Dong, D.G. Eshchenko, T. Prokscha, K.H. Chow, M.D. Hossain, T.J. Parolin, H. Saadaoui, M. Smadella, and Q. Song, Advanced Science Research Symposium 2009, Tokai, Japan, November 10-12, 2009.
- **Superconductivity and magnetism in the oxypnictides: ESR and μ SR studies of $(\text{La,Gd})\text{FeAsO}_{1-x}\text{F}_x$ compounds**
F. Murányi, A. Alfonsov, V. Kataev, A. Köhler, J. Werner, G. Behr, N. Leps, R. Klingeler, A. Konrat, C. Hess, B. Büchner, A. Amato, R. Khasanov, H. Luetkens, H.-H. Klauss, N.D. Zhigadlo,

- S. Katrych, Z. Bukowski, J. Karpinski, DPG Spring Meeting Dresden, Germany, March 22-27, 2009.
- **High field ESR spectroscopy on $\text{GdO}_{1-x}\text{F}_x\text{FeAs}$**
A. Alfonsov, F. Murányi, V. Kataev, N. Leps, R. Klingeler, A. Kondrat, C. Hess, J. Werner, G. Behr, B. Büchner, 9th International Conference on Research in High Magnetic Fields Dresden, Germany, July 22-25, 2009.
 - **EPR of the doped and undoped $\text{GdFeAsO}_{1-x}\text{F}_x$**
F. Murányi, A. Alfonsov, V. Kataev, A. Köhler, J. Werner, G. Behr, H. Keller, B. Büchner, Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, 26-28 August, 2009.
 - **Pressure Induced Static Magnetic Order in Superconducting FeSe_{1-x}**
M. Bendele, R. Khasanov, K. Conder, E. Pomjakushina, and H. Keller; Joint Users' Meeting at PSI 2009, Villigen, October 12-13, 2009.
 - **Superconductivity and Magnetism in FeSe_{1-x} : μSR pressure study**
M. Bendele, R. Khasanov, K. Conder, E. Pomjakushina, E. Morenzoni, MaNEP Workshop, Neuchâtel, 27. Januar 2010.

Invited lectures

- H. Keller: **Isotope effects and multi-band superconductivity in high-temperature superconductors**
SMEC 2009 Conference, Study of Matter at Extreme Conditions, Miami - Western Caribbean, U.S.A., March 28 - April 2, 2009.
- H. Keller: **Isotope effects and multi-band superconductivity in high-temperature superconductors**
Workshop on Routes to Superconductivity at Ambient Conditions, ICCMP, Brasilia, Brasilia, April 13 - 24, 2009.
- H. Keller: **Experimental and theoretical evidence for subtle lattice effects in layered high T_c systems**
The Institute of Physics, Chinese Academy of Sciences Beijing, Beijing, China, May 12, 2009.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
Seventh International Conference on New Theories, Discoveries and Applications of Superconductors and Related Materials (New3SC-7), Beijing, China, May 13-16, 2009.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
Mini-Workshop on High- T_c Superconductivity and Related Topics, University of Miami, Coral Gables, USA, November 14, 2009.
- S. Strässle: **NMR Search for Orbital-Current Effects in YBCO Compounds**
Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, 26-28 August, 2009.
- S. Weyeneth: **Anisotropy and Critical Behavior of High-Temperature Superconductors**
Lecture at Material Science Division, Argonne National Laboratory, Argonne, USA, 8. October, 2009.

18.2.2 Phase transitions and superconducting photon detectors

Articles

- **Optical and transport properties of ultrathin NbN films and nanostructures**
A. Semenov, B. Günther, U. Böttger, H.-W. Hübers, H. Bartolf, A. Engel, A. Schilling, K. Il'in, M. Siegel, R. Schneider, D. Gerthsen and N. A. Gippius, Phys. Rev. B, **80** (2009) 054510.
- **NbN superconducting nanowire photon counters: magnetoconductivity and other detector properties**
A. Engel, H. Bartolf, L. Gómez, A. Semenov, K. Il'in, A. Schilling, H.-W. Hübers and M. Siegel, AIP Conference Proceedings, **1185** (2009) 76-79.
- **Current-assisted thermally activated flux liberation in ultrathin nanopatterned NbN superconducting meander structures**
H. Bartolf, A. Engel, A. Schilling, K. Il'in, M. Siegel, H.-W. Hübers and A. Semenov, Phys. Rev. B, **81** (2010) 024502.
- **Application of a small oscillating magnetic field to reveal the peak effect in the resistivity of Nb₃Sn**
M. Reibelt, A. Schilling and N. Toyota, Phys. Rev. B, **81** (2010) 094510.
- **Comment on 'Superconducting transition in Nb nanowires fabricated using a focused-ion beam'**
A. Engel, Nanotechnology, **21** (2010) 168001.

PhD thesis

- **Fabrication and Characterization of Superconducting Nanowire Highspeed Single-Photon Detectors**
Holger Bartolf, PhD Thesis, Physik-Institut Universität Zürich, 2009.

Bachelor thesis

- **Aufbau eines ³He-Kryostaten zur Charakterisierung supraleitender, extrem schneller Einphotonen-Zähler**
Simon Gross, Bachelor Thesis, Physik-Institut Universität Zürich, 2009.

Contributed Conference Presentations

- **NbN nanowire photon counters: optical, electronic and detector properties**
A. Engel, 13th International Workshop on Low Temperature Detectors, Stanford, USA, 20.-24.7.2009.
- **Fluctuation Effects near the 1D-2D Cross-Over in Superconducting Nanostrips**
A. Engel, 2009 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, 26.-28.8.2009.

Invited Lectures

- H. Bartolf: **Detection of Electromagnetic Quanta and Thermal Vortex-Excitations within a Nanowire High-speed Single-Photon Detector**

Seminar Talk at IBM, IBM Research GmbH, Zurich Research Laboratory, Rüschlikon, Switzerland, 19.1.2010.

18.2.3 Surface Physics

Articles

- **Fermi surfaces of single-layer dielectrics on transition metals**
T. Greber, M. Corso, J. Osterwalder, Surf. Sci. 603, 1373-1377 (2009).
- **Advanced photoelectric effect experiment beamline at ELETTRA: a surface science laboratory coupled with synchrotron radiation**
G. Panaccione, I. Vobornik, J. Fujii, D. Krizmancic, E. Annese, L. Giovanelli, F. Maccherozzi, F. Salvador, A. De Luisa, D. Benedetti, A. Gruden, P. Bertoch, F. Polack, D. Cocco, G. Sostero, B. Diviacco, M. Hochstrasser, U. Maier, D. Pescia, C. H. Back, T. Greber, J. Osterwalder, M. Galaktionov, M. Sancrofti, and G. Rossi, Rev. Sci. Instrum. 80, 043105:1-12 (2009).
- **Unconventional Fermi surface spin textures in the $\text{Bi}_x\text{Pb}_{1-x}/\text{Ag}(111)$ surface alloy**
F. Meier, V. Petrov, S. Guerrero, C. Mudry, L. Patthey, J. Osterwalder, and J. Hugo Dil, Phys. Rev. B 79, 241408(R):1-4 (2009).
- **Multimorphism in molecular monolayers: pentacene on $\text{Cu}(110)$**
K. Müller, A. Kara, T. K. Kim, R. Bertschinger, A. Scheybal, J. Osterwalder, and T. A. Jung, Phys. Rev. B 79, 245421:1-7 (2009).
- **Looking inside an endohedral fullerene: inter- and intramolecular ordering of $\text{Dy}_3\text{N}@C_{80}(\text{Ih})$ on $\text{Cu}(111)$**
M. Treier, P. Ruffieux, R. Fasel, F. Nolting, S. Yang, L. Dunsch, and T. Greber, Phys. Rev. B 80, 081403(R):1-4 (2009).
- **A tunable topological insulator in the spin helical Dirac transport regime**
D. Hsieh, Y. Xia, D. Qian, L. Wray, J. H. Dil, F. Meier, J. Osterwalder, L. Patthey, J. G. Checkelsky, N. P. Ong, A. V. Fedorov, H. Lin, A. Bansil, D. Grauer, Y. S. Hor, R. J. Cava, and M. Z. Hasan, Nature 460, 1101-1106 (2009).
- **Band formation from coupled quantum dots formed by a nanoporous network on a copper surface**
J. Lobo-Checa, M. Matena, K. Müller, J. H. Dil, F. Meier, L. H. Gade, T. A. Jung, and M. Stöhr, Science 325, 300-303 (2009).
- **Spin and angle resolved photoemission on non-magnetic low-dimensional systems**
J. H. Dil, J. Phys.: Condens. Matter 21, 403001:1-22 (2009).
- **Exchange splitting of the three Gamma bar surface states of $\text{Ni}(111)$ from three-dimensional spin- and angle-resolved photoemission spectroscopy**
T. Okuda, J. Lobo-Checa, W. Auwärter, M. Morscher, M. Hoesch, V. N. Petrov, M. Hengsberger, A. Tamai, A. Dolocan, C. Cirelli, M. Corso, M. Muntwiler, M. Klöckner, M. Roos, J. Osterwalder, and T. Greber, Phys. Rev. B, 80, 180404(R):1-4 (2009).
- **Measuring spin-polarization vectors in angle-resolved photoemission spectroscopy**
F. Meier, J. H. Dil, and J. Osterwalder, New J. Phys., 11, 125008:1-21 (2009).

- **Observation of time-reversal-protected single-Dirac-cone topological-insulator states in Bi₂Te₃ and Sb₂Te₃**
D. Hsieh, Y. Xia, D. Qian, L. Wray, F. Meier, J. H. Dil, J. Osterwalder, L. Patthey, A. V. Fedorov, H. Lin, A. Bansil, D. Grauer, Y. S. Hor, R. J. Cava, and M. Z. Hasan, Phys. Rev. Lett. 103, 146401:1-4 (2009).
- **Optical Control of Field-Emission Sites by Femtosecond Laser Pulses**
H. Yanagisawa, C. Hafner, P. Dona, M. Klöckner, D. Leuenberger, T. Greber, M. Hengsberger, and J. Osterwalder, Phys. Rev. Lett. 103, 257603:1-4 (2009).
- **Spintronics without magnetism?**
J. H. Dil, SPG Mitteilungen 30, 8-10 (2010).
- **LUMO photoemission lineshape in quasi-one-dimensional C₆₀ chains**
A. Tamai, F. Baumberger, M. Hengsberger, J. Lobo-Checa, M. Muntwiler, M. Corso, C. Cirelli, L. Patthey, Z.-X. Shen, T. Greber, and J. Osterwalder, Phys. Rev. B, 81, 045423:1-6 (2010).
- **Nano-ice on boron nitride nanomesh: accessing proton disorder**
H. Ma, T. Brugger, S. Berner, Y. Ding, M. Iannuzzi, J. Hutter, J. Osterwalder, and T. Greber, Chem. Phys. Chem. 11, 399-403 (2010).
- **Graphene and Hexagonal Boron Nitride Layers: Nanostructures with 3 bond hierarchy levels**
T. Greber, eJSSN 8, 62-64 (2010).
- **h-BN on Rh(111): persistence of a commensurate 13-on-12 superstructure up to high temperatures**
D. Martoccia, S. A. Pauli, T. Brugger, T. Greber, B. D. Patterson, and P.R. Willmott, Surf. Sci. 604, L9-L11 (2010).
- **h-BN/Ru(0001) nanomesh: a 14-on-13 superstructure with 3.5 nm periodicity**
D. Martoccia, S. A. Pauli, T. Brugger, T. Greber, B. D. Patterson, and P.R. Willmott, Surf. Sci. 604, L16-L19 (2010).
- **Supramolecular assemblies formed on an epitaxial graphene superstructure**
A. J. Pollard, E. W. Perkins, N. A. Smith, A. Saywell, G. Goretzki, A. G. Phillips, S. P. Argent, H. Sachdev, F. Müller, S. Hüfner, S. Gsell, M. Fischer, M. Schreck, J. Osterwalder, T. Greber, S. Berner, N. R. Champness, P.H. Beton, Angew. Chem. Int. Ed. 49, 1794-1799 (2010).
- **Laser-induced field emission from tungsten tip: optical control of emission sites and emission process**
H. Yanagisawa, C. Hafner, P. Dona, M. Klöckner, D. Leuenberger, T. Greber, J. Osterwalder, M. Hengsberger, Phys. Rev. B 81, 115429:1-10 (2010).
- **Influence of the substrate lattice structure on the formation of quantum well states in thin In and Pb films on silicon**
J. H. Dil, B. Hülsen, T. U. Kampen, P. Kratzer and K. Horn, J. Phys.: Condens. Matter 22, 135008:1-9 (2010).

PhD theses

- **Systematic structure investigation of YBCO thin films with direct methods and surface x-ray diffraction**
Christian Schlepütz, PhD Thesis, Physik-Institut, Universität Zürich, 2009.

- **Organic semiconductor interfaces with insulators and metals**
Kathrin Müller, PhD Thesis, Physik-Institut, Universität Zürich, 2009, Cuvillier Verlag, Göttingen (2009).
- **Graphene and hexagonal boron nitride on transition metals and their application**
Thomas Brugger, PhD Thesis, Physik-Institut, Universität Zürich, 2010.

Master theses

- **Photon emission during inelastic electron tunneling with nanometer resolution from the h-BN/Rh(111) nanomesh**
Mario Thomann, Master Thesis, Physik-Institut, Universität Zürich, 2009.
- **Graphene on h-BN nanomesh**
Dominic Böni, Master Thesis, Physik-Institut, Universität Zürich, 2009.

Contributed conference presentations

- **Asymmetric electron emission from a tungsten tip apex due to surface electromagnetic waves excited by laser pulses**
H. Yanagisawa, 5th Workshop on Numerical Methods for Optical Nanostructures, ETH Zürich, 07.07.09.
- **Time-resolved photoemission on a ferromagnetic h-BN/Ni(111) surface and exciton excitation (Poster)**
D. Leuenberger, Femto-9 Conference, Beijing University, Beijing, China, 10.08.09.
- **Nano-ice on the boron nitride nanomesh**
H. Ma, Gemeinsame Jahrestagung der Schweizerischen und Österreichischen Physikalischen Gesellschaften, Innsbruck, Österreich, 04.09.09.
- **ARPES on epitaxial graphene on transition metals**
T. Brugger, SLS Symposium on Graphene, PSI Villigen, 01.09.09.
- **Asymmetric electron emission from a tungsten tip apex due to a Zenneck wave excited by a laser pulse**
H. Yanagisawa, 10th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-10), Granada, Spain, 22.09.09.
- **Determination of the surface magnetization direction with resonant x-ray photoelectron diffraction**
M. Morscher, International Conference on Electron Spectroscopy and Structure (ICESS-11), Nara, Japan, 06.10.09.
- **COPHEE and SMOKE**
G. Landolt, Spectroscopy on Novel Materials Workshop, Rigi, 13.01.10.
- **Half of what you always wanted to know about topological insulators**
J. Osterwalder, Spectroscopy on Novel Materials Workshop, Rigi, 14.01.10.
- **Spin-state interference in photoemission from Sb/Ag(111)**
F. Meier, Spectroscopy on Novel Materials Workshop, Rigi, 14.01.10.

- **Spin-exchange in quantum well states due to hybridization effects**
B. Slomski, Spectroscopy on Novel Materials Workshop, Rigi, 14.01.10.
- **Spin- and angle-resolved photoemission on low-dimensional Rashba systems: a direct probe for spintronics**
J. H. Dil, 26th Annual SAOG Meeting (Schweizerische Arbeitsgemeinschaft für Oberflächen und Grenzflächen), Fribourg, 22.01.10.
- **Switching the surface texture by hydrogen intercalation**
T. Greber, Surface Science Symposium (3S10), St. Christoph, Austria, 08.03.10.
- **Topological insulators: a new surface science playground**
J. H. Dil, Surface Science Symposium (3S10), St. Christoph, Austria, 09.03.10.
- **Spin state interference in photoemission from Sb/Ag(111)**
F. Meier, Surface Science Symposium (3S10), St. Christoph, Austria, 09.03.10.
- **Reversible switching of surface texture by hydrogen intercalation**
T. Greber, March Meeting of the American Physical Society, Portland, OR, USA, 15.03.10.
- **Nano-ice on the boron nitride nanomesh - accessing proton disorder**
H. Ma, March Meeting of the American Physical Society, Portland, OR, USA, 17.03.10.

Invited lectures

- J. H. Dil: **Spin-resolved ARPES: from model Rashba systems to topological metals**
Seminar, AG Wiesendanger, Institut für Angewandte Physik, Universität Hamburg, 18.05.09.
- T. Greber: **Graphene and boron nitride single layer templates for molecules**
4th Annual ITSLEIF Meeting and 2nd Symposium on Ion Insulator Interactions, Girano, Spain, 20.05.09.
- J. Osterwalder: **Monolagen von hexagonalem Bornitrid und Graphene: zwei ungleiche Verwandte**
Augsburger Physikalisches Kolloquium, Physikalisches Institut, Universität Augsburg, 15.06.09.
- J. Osterwalder: **Monolayers of hexagonal boron nitride and graphene: two unlike cousins**
Seminar, Laboratory for Photochemistry and Spectroscopy, Katholieke Universiteit Leuven, Leuven, Belgium, 10.08.09.
- J. H. Dil: **Spin-resolved ARPES: from model systems to topological metals**
International Workshop on Strong Correlations and Angle-Resolved Photoemission Spectroscopy - CORPES09, Zürich, 24.07.09.
- T. Greber: **Hosting molecules in a 3 nm grid on sp^2 single layers on transition metals**
International Conference on Materials for Advanced Technologies - ICMAT09, Singapore, 30.06.09.
- T. Greber: **Functional nano-templates: sp^2 single layer superstructures**
2009 International Workshop on Nanostructures and Nanodevices, Institute of Physics, Chinese Academy of Sciences, Beijing, China, 02.07.09.

- T. Greber: **Substrates for molecular spintronics - dedicated to H. C. Siegmann (1935-2009)**
2009 International Workshop on Nanostructures and Nanodevices, Sichuan University, Chengdou, China, 06.07.09.
- T. Greber: **Towards substrates for molecular spintronics**
Abteilungsseminar, EMPA Thun, 24.08.09.
- T. Greber: **sp^2 -hybridized single layer templates: hexagonal boron nitride and graphene**
Gemeinsame Jahrestagung der Schweizerischen und Österreichischen Physikalischen Gesellschaften, Innsbruck, Österreich, 03.09.09.
- J. Osterwalder: **Boron nitride monolayers on transition metal surfaces - and their relation to graphene**
Sehendorf-Seminar, Abteilung Festkörperphysik, Universität Kiel, 17.09.09.
- T. Greber: **Molecular trapping in sp^2 hybridized single layer superstructures**
10th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-10), Granada, Spain, 25.09.09.
- J. Osterwalder: **Measuring spin polarization vectors of surface state electrons**
International Workshop on Electron Spectroscopy for Gas-phase Molecules and Solid Surfaces, Matsushima, Japan, 15.10.09.
- J. H. Dil: **Spin-resolved ARPES on low-dimensional Rashba systems**
International Conference on Electron Spectroscopy and Structure (ICESS-11), Nara, Japan, 10.10.09.
- T. Greber: **Corrugated and chiral graphene and boron nitride single layers on transition metals**
CECAM Workshop, EPF Lausanne, 14.10.09.
- T. Greber: **sp^2 -hybridized templates for molecules: from h-BN nanomesh to graphene nanodots**
Condensed Matter Seminar, Physikalisches Institut, Universität Basel, 23.11.09.
- T. Greber: **Boron nitride single layers: the polar sister of graphene**
Seminar, Physics Department, University of Hawaii at Manoa, Honolulu, HI, USA, 04.12.09.
- T. Greber: **Graphene and boron nitride single layers: nanostructures with three bond hierarchy levels**
7th International Symposium on Atomic Level Characterizations for New Materials and Devices (ALC-09), Maui, Hawaii, USA, 09.12.09.
- J. Osterwalder: **The insulating cousin of graphene: monolayers of hexagonal boron nitride**
Kolloquium, Physikalisches Institut, Universität Würzburg, 21.12.09.
- J. Osterwalder: **Topological insulators in the Bi systems**
449. WE-Heraeus Seminar on "Rashba and related spin-orbit effects in metals", Bad Honnef, Germany, 01.01.10.
- T. Greber: **News from the photoemission world: looking inside endofullerenes**
Surface and Interface Microscopy / SLS Beamline Workshop, Weggis, 15.01.10.
- J. Osterwalder: **White graphene: monolayers of hexagonal boron nitride**
Ruoff Group Seminar, Department of Mechanical Engineering, University of Texas, Austin, TX, USA, 08.02.10.

- J. Osterwalder: **Of nanotemplates, spin state interference and laser-induced field emission**
Shen Group Seminar, Department of Applied Physics, Stanford University, Palo Alto, CA, USA, 10.02.10.
- J. Osterwalder: **Spin-polarized photoemission from surface states**
Workshop / Winter School on Photoemission, Dijon, France, 25.02.10.
- H. Yanagisawa: **Optical control of field emission sites by femtosecond laser pulses**
Seminar, Laboratory for Electromagnetic Fields and Microwave Electronics, ETHZ, 10.03.10

18.2.4 Physics of Biological systems

Articles

- **Off-axis and inline electron holography: Experimental comparison**
T. Latychevskaia, P. Formanek, C. T. Koch and A. Lubk, Ultramicroscopy 110(5) (2010) 472-482.
- **Nondestructive imaging of individual biomolecules**
M. Germann, T. Latychevskaia, C. Escher and H.-W. Fink, Phys. Rev. Lett. 104 (9) (2010) 095501.
- **Simultaneous amplitude and phase reconstruction in holography**
T. Latychevskaia and H.-W. Fink, Optics Express 17 (13) (2009) 10697-10705.

Article in press

- **Fabrication and characterization of low aberration micrometer-sized electron lenses**
E. Steinwand, J.-N. Longchamp and H.-W. Fink, Ultramicroscopy, in press.

Invited lecture

- H.-W. Fink: **Structural Biology at the Single Molecule Level Using Coherent Low Energy Electrons**
Talk at the "Swiss Soft Days", Zurich, 04.02.2010.

Posters

- **Low Energy Electron Holography**
T. Latychevskaia, J.-N. Longchamp, M. Germann, C. Escher and H.-W. Fink at the "Swiss Soft Days", Zurich, 04.02.2010.
- **Coherent Diffraction Microscopy with Low Energy Electrons**
E. Steinwand, J.-N. Longchamp and H.-W. Fink at the "Swiss Soft Days" 04.02.2010 Zurich.
- **Low-energy electron coherent diffraction microscopy**
E. Steinwand, J.-N. Longchamp and H.-W. Fink at "Nanostructures at Surfaces", Monte Verita, Ascona, 20-25.09.2009.

18.2.5 Physical Systems Biology and non-equilibrium Soft Matter

Articles

- **Determination of Mechanical Stress Distribution in Drosophila Wing Discs Using Photoelasticity**
U. Nienhaus, T. Aegerter-Wilmsen, and C.M. Aegerter, *Mechanisms of Development* **126**, 942 (2009).
- **Effects of growth regulation by mechanical stress on epithelial topology**
T. Aegerter-Wilmsen, A. Smith, A. Christen, C.M. Aegerter, E. Hafen, and K. Basler, *Development* **137**, 499 (2010).
- **Focusing light through living tissue.**
I.M. Vellekoop and C.M. Aegerter, *SPIE* **7554**, 75420 (2010).
- **Scattering based fluorescence microscopy: imaging through turbid media**
I.M. Vellekoop and C.M. Aegerter, *Optics Letters* **35**, 1245 (2010).

Articles in press

- **Photo-elastic properties of the wing imaginal disc of Drosophila**
T. Schluck and C.M. Aegerter, *Europ. Phys. J. E* **32** (2010).
- **Exploiting disorder for perfect focusing.**
I.M. Vellekoop, A. Lagendijk, and A. P. Mosk, *Nature Photonics* **4** (2010).
- **Velocity distributions of uniformly heated three dimensional granular gases**
C.C. Maass, G. Maret, and C.M. Aegerter.

Conference reports

- **Imaging techniques**
C.M. Aegerter, U. Nienhaus, T. Schluck, and I.M. Vellekoop, WingX retreat, Olivone, Switzerland (June 8th - 10th 2009).
- **Mechanics of Drosophila wing discs (poster)**
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck and C.M. Aegerter, Gordon conference on Soft condensed matter Physics, Colby Sawyer college, USA (August 9th - 13th 2009)
- **Dynamics of levitated foams**
N. Isert, G.Maret, and C.M. Aegerter, Workshop of the European graduate college in soft condensed matter, Strasbourg, France (September 28th - October 1st 2009)
- **Non-linear effects in Anderson localization**
W. Bührer, S. Kammerer S. Fiebig, G. Maret, and C.M. Aegerter, Workshop of the European graduate college in soft condensed matter, Strasbourg, France (September 28th - October 1st 2009)
- **Coherent backscattering from fluidized granular beds**
S. Fiebig, W. Bührer, G. Maret, and C.M. Aegerter, Workshop of the European graduate college in soft condensed matter, Strasbourg, France (September 28th - October 1st 2009)

- **Focusing light through living tissue. (poster).**
I.M. Vellekoop and C.M. Aegerter, Photonics West, San Francisco CA, USA (January 15th - 20th, 2010).
- **Birefringent properties of developing trachea. (poster)**
D. Assmann, T. Schluck, and C.M. Aegerter, Systemsbiology retreat, Monte Verita, Switzerland (February 28th - March 3rd 2010).
- **Photo-elastic properties of the wing imaginal disc of Drosophila. (poster)**
T. Schluck, D. Assmann, A. Smith, and C.M. Aegerter, Systemsbiology retreat, Monte Verita, Switzerland (February 28th - March 3rd 2010).
- **Determination of stresses in Drosophila wing imaginal discs**
U. Nienhaus, T. Schluck and C.M. Aegerter, Systemsbiology retreat, Monte Verita, Switzerland (February 28th - March 3rd 2010).
- **Imaging through turbid media.**
G. Ghielmetti, I.M. Vellekoop, and C.M. Aegerter, Systemsbiology retreat, Monte Verita, Switzerland (February 28th - March 3rd 2010).

Invited lectures

- I.M. Vellekoop: **Focusing light through non-transparent objects**
UMCG, Groningen, The Netherlands (18.05.2009).
- C.M. Aegerter: **Allometric scaling laws in Biology.**
Habilitationvortrag, Zürich, Switzerland (01.10.2009).
- C.M. Aegerter: **Imaging through a turbid layer.**
Mesolmage GDR Conference, Paris, France (29.10.2009).
- C.M. Aegerter: **Mechanics of Drosophila wing discs.**
International conference on Physics Biology interface, Kalkutta, India (14.12.2009).
- C.M. Aegerter: **Mechanical properties of Drosophila wing discs.**
Swiss Soft Matter Day, Zürich, Switzerland (04.02.2010).
- C.M. Aegerter: **Physical Systems Biology of Drosophila.**
Systemsbiology retreat, Monte Verita, Switzerland (02.03.2010).

18.2.6 Outreach

Invited lectures

- H. Keller: **Was ist Licht?**
Kinderuniversität Waldshut, Universität Zürich, Zürich, Switzerland, June 17, 2009.
- J. Osterwalder: **Unser Leben ohne Elektrizität**
Kinderuniversität der Universität Zürich, 18.11.09.