

## 20 Publications

### 20.1 Elementary particles and their interactions

#### 20.1.1 Dark Matter

##### Article

- *Study of nuclear recoils in liquid argon with monoenergetic neutrons*  
C. Regenfus, Y. Allkofer, C. Amsler, W. Creus, A. Ferella, J. Rochet, and M. Walter,  
Journal of Physics: Conference Series **375** (2012) 012019.

#### 20.1.2 AEGIS

##### Articles

- *The AEGIS experiment at CERN: Measuring the free fall of antihydrogen*  
AEGIS Collaboration, Hyperfine Interactions **209** (2012) 43.
- *Towards the production of an ultra cold antihydrogen beam with the AEGIS apparatus*  
James William Storey, Hyperfine Interactions **212** (2012) 109.
- *A new application of emulsions to measure the gravitational force on antihydrogen*  
C. Amsler *et al.*, J. of Instrumentation **8** (2013) P02015.
- *Exploring the WEP with a pulsed cold beam of antihydrogen*  
M. Doser, C. Amsler, *et al.* (AEGIS Collaboration), Classical Quantum Gravity **29** (2012) 184009.

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##### Articles in press

- *Particle tracking at 4K: The Fast Annihilation Cryogenic Tracking (FACT) detector for the AEGIS antimatter gravity experiment*  
J. Storey *et al.* (AEGIS Collaboration), Nucl. Instr. and Meth.
- *Development of nuclear emulsions with 1  $\mu\text{m}$  spatial resolution for the AEGIS experiment*  
M. Kimura *et al.* (AEGIS Collaboration), Nucl. Instr. and Meth.

##### Lectures

- Carlo Canali: *Particle tracking at 4K: The Fast Annihilation Cryogenic Tracking (FACT) detector for the AEGIS antimatter gravity experiment*  
13th Vienna Conference on Instrumentation, Vienna, Austria, 11 February 2013.

#### 20.1.3 GERDA

##### Articles

- *The GERDA Experiment for the Search of  $0\nu\beta\beta$  decay in  $^{76}\text{Ge}$*   
K.-H. Ackermann, M. Agostini, M. Allardt, M. Altmann, E. Andreotti, A.M. Bakalyarov, M. Balata, I. Barabanov, M. Barnabe Heider, N. Barros, L. Baudis, C. Bauer *et al.* (GERDA Collaboration), Eur. Phys. J. C **73**, 2330 (2013).
- *Measurement of the half-life of the two-neutrino double beta decay of Ge-76 with the Gerda experiment*  
M. Agostini, M. Allardt, E. Andreotti, A.M. Bakalyarov, M. Balata, I. Barabanov, M. Barnabe Heider, N. Barros, L. Baudis, C. Bauer *et al.* (GERDA Collaboration), J. Phys. G **40**, 035110 (2013).

##### Lectures

- G. Benato: *Improvement of the Offline Event Reconstruction for the GERDA Experiment*  
SIF Meeting 2012, Napoli, Italy, September 21, 2012.

- G. Kiran Kumar: *GERmanium Detector Array: Status and Plans*  
TEVPA-12, TIFR Mumbai, India, December 12th, 2012.
- G. Benato: *The GERDA experiment for the search of neutrinoless double beta decay*  
SPS Meeting 2012, ETH Zurich, July 21, 2012.

#### Theses

- *Calibration of Phase I of the GERDA Double Beta Decay Experiment*  
F. Froberg, PhD thesis, Universität Zürich, 2012.
- *Studies of Neutron Flux Suppression from a Gamma-ray Source and the GERDA Calibration System*  
M. Tarka, PhD thesis, Universität Zürich, 2012.
- *Calibration of a Germanium Detector*  
L. van der Schaaf, Bachelor thesis, Universität Zürich, 2012.

### 20.1.4 DIRAC

#### Articles

- *The DIRAC experiment at CERN*  
Angela Benelli (DIRAC Collaboration), EPJ Web of Conferences **37** (2012) 01011.

#### Lectures

- Angela Benelli: *The DIRAC experiment at CERN*  
Meson 2012 Conference, Krakow, Poland, 1 June 2012.

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### 20.1.5 XENON/DARWIN

#### Articles

- *Dark Matter Results from 225 Live Days of XENON100 Data*  
E. Aprile *et al.* (XENON100 Collaboration), Phys. Rev. Lett. **109**, 181301 (2012).
- *Direct dark matter detection: the next decade*  
L. Baudis, Phys. Dark Univ. **1**, 94-108 (2012).
- *The Distributed Slow Control System of the XENON100 Experiment*  
E. Aprile *et al.*, JINST **7**, T12001 (2012).
- *DARWIN: dark matter WIMP search with noble liquids*  
L. Baudis (for the DARWIN Consortium), J. Phys. Conf. Ser. **375**, 012028 (2012).

#### Lectures

- L. Baudis: *Detectors for astroparticle physics and dark matter searches*  
Vienna Conference of Instrumentation, Vienna, February 11, 2013.
- L. Baudis: *Dark matter searches with liquid xenon*  
Physics seminar, University of Geneva, February 6, 2013.
- L. Baudis: *Dark matter WIMP searches in the Milky Way*  
Physics Colloquium, Muenster University, January 17, 2013.
- L. Baudis: *XENON100, XENON1T*  
The Physics of the Universe Summit, SpaceX, Los Angeles, January 12, 2013.

- L. Baudis: *New results from XENON100*  
TPC 2012, Paris, December 17, 2012.
- L. Baudis: *Direct dark matter WIMP searches in the Milky Way*  
Physics Colloquium, 6th AFI Symposium, Innsbruck, December 7, 2012.
- L. Baudis: *Dark matter detectors - from low-temperature crystals to cryogenic liquids*  
Cabrera Fest, Stanford University, October 7, 2012.
- L. Baudis: *Direct dark matter detection*  
IoP Colloquium, University of Amsterdam, July 5, 2012.
- L. Baudis: *Experimental review on neutrinoless double beta decay*  
What is  $\nu$ ? & INVISIBLES12 Meeting, GGI, Florence, Italy, June 27th, 2012.
- L. Baudis: *A review of direct WIMP search experiments*  
Neutrino 2012, Kyoto, June 9, 2012.
- L. Baudis: *Results from the XENON100 Dark Matter Search Experiment*  
Physics Seminar, Granada University, May 3, 2012.
- L. Baudis: *Direct detection of particle dark matter: where do we stand, where are we going?*  
Physics Colloquium, IFIC, Valencia University, April 26, 2012.
- M. Schumann: *New dark matter results from XENON*  
MLL Kolloquium, LMU/TU Munich, Germany, October 25th, 2012.
- 80 - M. Schumann: *XENON100 – The new Results*  
Dienstagseminar, DESY Hamburg, Germany, October 23rd, 2012.
- M. Schumann: *XENON100 – The new Results*  
Seminar, CEA Saclay, France, October 20th, 2012.
- M. Schumann: *XENON100 – The new Results*  
Seminar, DESY Zeuthen, Germany, October 17th, 2012.
- G. Kessler: *XENON100, XENON1T and DARWIN*  
CHIPP Meeting 2012, Kartause Ittingen, Switzerland, September 14, 2012.
- M. Schumann: *XENON100 – The new Results*  
Fermilab Seminar/PATRAS12, Chicago, USA, July 20th, 2012.
- A. Manalaysay: *New Frontiers in Dark Matter Direct Detection: Probing sub-GeV DM Masses*  
PATRAS12, Chicago, USA, July 18th, 2012.
- M. Schumann: *Direct Dark Matter Searches*  
What is  $\nu$ ? & INVISIBLES12 Meeting, GGI, Florence, Italy, June 27th, 2012.
- A. Manalaysay: *Measurements of the low-energy response of liquid xenon*  
SPS Meeting 2012, ETH Zurich, Switzerland, June 21st, 2012.
- M. Schumann: *Dark Matter Search with XENON*  
SPS Meeting 2012, ETH Zurich, Switzerland, June 21st, 2012.
- M. Schumann: *Dark Matter Search with XENON*  
Seminar, AEC University of Bern, Switzerland, May 10th, 2012.
- M. Schumann: *Dark Matter Search with XENON*  
Nuclear Chemistry Seminar, Mainz University, Germany, May 2nd, 2012.
- M. Schumann: *Dark Matter Search with Noble Liquids*  
Rencontres de Moriond 2012, Cosmology Session, La Thuile, Italy, March 14th, 2012.

## Theses

- *Material Screening and Selection for the XENON100 Dark Matter Experiment*  
A. Askin, PhD thesis, Universität Zürich, 2012.
- *Preparations for measurements of the low energy response of liquid xenon*  
P. Pakarha, master thesis, Universität Zürich, 2012.
- *Neutron Background Monitoring for XENON100*  
E. Crivelli, bachelor thesis, Universität Zürich, 2012.
- *Simulation and optimization of the electric field in a liquid xenon time projection chamber*  
H. Dujmovic, bachelor thesis, Universität Zürich, 2012.

## 20.1.6 CTA

### Thesis

- *Contributions to High Energy and Very High Energy Gamma-Ray Astronomy*  
Ben Huber, PhD thesis, Universität Zürich, 2012.

### Articles

- *A stacking method to study the gamma-ray emission of source samples based on the co-adding of Fermi-LAT count maps*  
B. Huber, C. Farnier, A. Manalaysay, U. Straumann, and R. Walter, *Astronomy&Astrophysics* **547**, A102 (2012).

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## 20.1.7 H1

### Articles

- *Measurement of Dijet Production in Diffractive Deep-Inelastic Scattering with a Leading Proton at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 1970.
- *Measurement of Inclusive and Dijet  $D^*$  Meson Cross Sections in Photoproduction at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 1995.
- *Measurement of Beauty and Charm Photoproduction using Semimuonic Decays in Dijet Events at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 2047.
- *Inclusive Measurement of Diffractive Deep-Inelastic Scattering at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 2074.
- *Determination of the Integrated Luminosity at HERA using Elastic QED Compton Events*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 2163.
- *Measurement of Beauty Photoproduction near Threshold using Di-electron Events with the H1 Detector at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 2148.
- *Inclusive Deep Inelastic Scattering at High  $Q^2$  with Longitudinally Polarised Lepton Beams at HERA*  
H1-Collaboration, F.D. Aaron *et al.*, *JHEP* **09** (2012), 061.
- *Combined Inclusive Diffractive Cross Sections Measured with Forward Proton Spectrometers in Deep Inelastic  $ep$  Scattering at HERA*  
H1- and ZEUS-Collaboration, F.D. Aaron *et al.*, *Eur. Phys. J. C* **72** (2012), 2175.
- *Combination and QCD Analysis of Charm Production Cross Section Measurements in Deep-Inelastic  $ep$  Scattering at HERA*  
H1- and ZEUS-Collaboration, H. Abramowicz *et al.*, *Eur. Phys. J. C* **73** (2013), 2311.

## Article in press

- *Measurement of Charged Particle Spectra in Deep-Inelastic ep Scattering at HERA*  
H1-Collaboration, C. Alexa *et al.*, Eur. Phys. J. C, arXiv:1302.1321 [hep-ex]

## 20.1.8 LHCb

## Articles

- *Experimental constraints from flavour changing processes and physics beyond the Standard Model*  
N. Serra, Invited review for Top and Flavour physics in the LHC era, Eur. J. Phys. C **72**, Issue 8.
- *Searching for New Physics in rare B-meson decays*  
N. Serra, Nuovo Cimento C **36** (2013) 01.
- *Observations of  $B_s^0 \rightarrow \psi(2S)\eta$  and  $B_{(s)}^0 \rightarrow \psi(2S)\pi^+\pi^-$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Nucl. Phys. B **871** (2013) 403.
- *Prompt charm production in pp collisions at  $\sqrt{s}=7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Nucl. Phys. B **871** (2013) 1.
- *Exclusive  $J/\psi$  and  $\psi(2S)$  production in pp collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, J. Phys. G **40** (2013) 045001.
- *Analysis of the resonant components in  $B^0 \rightarrow J/\psi\pi^+\pi^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **87** (2013) 052001.
- *Measurement of the fragmentation fraction ratio  $f_s/f_d$  and its dependence on B meson kinematics*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1304** (2013) 001.
- *Measurement of CP observables in  $B^0 \rightarrow DK^{*0}$  with  $D \rightarrow K^+K^-$*   
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1303** (2013) 067.
- *Differential branching fraction and angular analysis of the  $B^+ \rightarrow K^+\mu^+\mu^-$  decay*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1302** (2013) 105.
- *Search for the rare decay  $K_s \rightarrow \mu^+\mu^-$*   
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1301** (2013) 090.
- *Measurement of the ratio of branching fractions  $BR(B^0 \rightarrow K^{*0}\gamma)/BR(B_s^0 \rightarrow \phi\gamma)$  and the direct CP asymmetry in  $B^0 \rightarrow K^{*0}\gamma$*   
LHCb-Collaboration, R. Aaij *et al.*, Nucl. Phys. B **867** (2013) 1.
- *Measurement of the cross-section for  $Z \rightarrow e^+e^-$  production in pp collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1302** (2013) 106.
- *Measurement of  $J/\psi$  production in pp collisions at  $\sqrt{s} = 2.76$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1302** (2013) 041.
- *Measurement of the time-dependent CP asymmetry in  $B^0 \rightarrow J/\psi K_s^0$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **721** (2013) 24.
- *First evidence for the decay  $B_s \rightarrow \mu^+\mu^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **110** (2013) 021801.
- *Observation of  $D^0 - \bar{D}^0$  oscillations*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **110**, (2013) 101802.
- *Measurement of the  $B^0 - \bar{B}^0$  oscillation frequency  $\Delta m_d$  with the decays  $B^0 \rightarrow D^- \pi^+$  and  $B^0 \rightarrow J/\psi K^{*0}$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **719** (2013) 318.

- *A study of the Z production cross-section in pp collisions at  $\sqrt{s} = 7$  TeV using tau final states*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1301** (2013) 111.
- *Measurement of the CP asymmetry in  $B^0 \rightarrow K^{*0} \mu^+ \mu^-$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **110** (2013) 031801.
- *Measurement of the  $D^{+/-}$  production asymmetry in 7 TeV pp collisions*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **718** (2013) 902.
- *First evidence for the annihilation decay mode  $B^+ \rightarrow D_s^+ \phi$*   
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1302** (2013) 043.
- *First observation of the decays  $\bar{B}_{(s)}^0 \rightarrow D_s^+ K^- \pi^+ \pi^-$  and  $\bar{B}_s^0 \rightarrow D_{s1}^+ (2536) \pi^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **86** (2012) 112005.
- *First observation of the decay  $B^+ \rightarrow \pi^+ \mu^+ \mu^-$*   
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1212** (2012) 125.
- *A model-independent Dalitz plot analysis of  $B^\pm \rightarrow DK^\pm$  with  $D \rightarrow K_s^0 h^+ h^-$  ( $h = \pi, K$ ) decays and constraints on the CKM angle  $\gamma$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **718** (2012) 43.
- *Measurements of  $B_c^+$  production and mass with the  $B_c^+ \rightarrow J/\psi \pi^+$  decay*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **109** (2012) 232001.
- *Measurement of the fraction of  $\Upsilon(1S)$  originating from  $\chi_b(1P)$  decays in pp collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1211** (2012) 031.
- *Measurement of the  $B_s^0 \rightarrow J/\psi K^{*0}$  branching fraction and angular amplitudes*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **86** (2012) 071102.
- *Study of  $D_{sJ}$  decays to  $D^+ K_s^0$  and  $D^0 K^+$  final states in pp collisions*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1210** (2012) 151.
- *Measurement of the effective  $B_s^0 \rightarrow K^+ K^-$  lifetime*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **716** (2012) 393.
- *Observation of the decay  $B^0 \rightarrow \bar{D}^0 K^+ K^-$  and evidence for  $B_s \bar{D}^0 K^+ K^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **109** (2012) 131801.
- *Measurement of the  $B_s$  effective lifetime in the  $J/\psi f^0(980)$  final state*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **109** (2012) 152002.
- *Measurement of prompt hadron production ratios in pp collisions at  $\sqrt{s} = 0.9$  and 7 TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 2168.
- *Measurement of b-hadron branching fractions for two-body decays into charmless charged hadrons*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1210** (2012) 037.
- *Observation of excited  $\Lambda_b^0$  baryons*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **109** (2012) 172003.
- *Measurement of the isospin asymmetry in  $B \rightarrow K^{(*)} \mu^+ \mu^-$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1207** (2012) 133.
- *Observation of double charm production involving open charm in pp collisions at  $\sqrt{s}=7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1206** (2012) 141.
- *Measurement of the  $B_s^0 \rightarrow J/\psi K_s^0$  branching fraction*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **713** (2012) 172.

- *Measurement of relative branching fractions of B decays to  $\psi(2S)$  and  $J/\psi$  mesons*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 2118.
- *Measurement of the  $D_s^+ - D_s^-$  production asymmetry in 7 TeV  $pp$  collisions*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **713** (2012) 186.
- *Measurement of the CP-violating phase  $\phi_s$  in  $B_s \rightarrow J/\psi\pi^+\pi^-$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **713** (2012) 378.
- *Analysis of the resonant components in  $B_s \rightarrow J/\psi\pi^+\pi^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **86** (2012) 052006.
- *Measurement of the polarization amplitudes and triple product asymmetries in the  $B_s^0 \rightarrow \phi\phi$  decay*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **713** (2012) 369.
- *Inclusive W and Z production in the forward region at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1206** (2012) 058.
- *Measurement of the ratio of prompt  $\chi_c$  to  $J/\psi$  production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **718** (2012) 431.
- *Measurement of  $\psi(2S)$  meson production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 2100.
- *Measurements of the branching fractions of the decays  $B_s^0 \rightarrow D_s^\mp K^\pm$  and  $B_s^0 \rightarrow D_s^- \pi^+$*   
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1206** (2012) 115.
- 84 - *First observation of the decay  $B_c^+ \rightarrow J/\psi\pi^+\pi^-\pi^+$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 251802.
- *Strong constraints on the rare decays  $B_s \rightarrow \mu^+\mu^-$  and  $B^0 \rightarrow \mu^+\mu^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 231801.
- *Observation of CP violation in  $B^+ \rightarrow DK^+$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **712** (2012) 203 [Erratum-ibid. B **713** (2012) 351].
- *Measurements of the branching fractions and CP asymmetries of  $B^+ \rightarrow J/\psi\pi^+$  and  $B^+ \rightarrow \psi(2S)\pi^+$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **85** (2012) 091105.
- *Measurement of  $Y$  production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 2025.
- *Measurement of the ratio of branching fractions  $\mathcal{B}(B^0 \rightarrow K^{*0}\gamma)/\mathcal{B}(B_s^0 \rightarrow \phi\gamma)$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **85** (2012) 112013.
- *First evidence of direct CP violation in charmless two-body decays of  $B_s$  mesons*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 201601.
- *Search for the  $X(4140)$  state in  $B^+ \rightarrow J/\psi\phi K^+$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **85** (2012) 091103.
- *Opposite-side flavour tagging of B mesons at the LHCb experiment*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 2022.
- *Measurement of the  $B^\pm$  production cross-section in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1204** (2012) 093.
- *Determination of the sign of the decay width difference in the  $B_s$  system*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 241801.
- *Measurement of the cross-section ratio  $\sigma(\chi_{c2})/\sigma(\chi_{c1})$  for prompt  $\chi_c$  production at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **714** (2012) 215.

- *Searches for Majorana neutrinos in  $B^-$  decays*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **85** (2012) 112004.
- *First observation of the decays  $\bar{B}^0 \rightarrow D^+ K^- \pi^+ \pi^-$  and  $B^- \rightarrow D^0 K^- \pi^+ \pi^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 161801.
- *Observation of  $X(3872)$  production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 1972.
- *Measurement of charged particle multiplicities in  $pp$  collisions at  $\sqrt{s} = 7$  TeV in the forward region*  
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **72** (2012) 1947.
- *Measurement of mixing and CP violation parameters in two-body charm decays*  
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1204** (2012) 129.
- *Differential branching fraction and angular analysis of the decay  $B^0 \rightarrow K^{*0} \mu^+ \mu^-$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 181806.
- *Absolute luminosity measurements with the LHCb detector at the LHC*  
LHCb-Collaboration, R. Aaij *et al.*, JINST **7** (2012) P01010.
- *Search for the lepton number violating decays  $B^+ \rightarrow \pi^- \mu^+ \mu^+$  and  $B^+ \rightarrow K^- \mu^+ \mu^+$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 101601.
- *Measurements of the Branching fractions for  $B_{(s)} \rightarrow D_{(s)} \pi \pi \pi$  and  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi \pi \pi$*   
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **84** (2011) 092001 [Erratum-ibid. D **85** (2012) 039904].
- *Observation of  $J/\psi$  pair production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **707** (2012) 52.

#### LHCb notes and reports

- *Search for the rare decays  $B_s^0 \rightarrow \mu^+ \mu^-$  and  $B^0 \rightarrow \mu^+ \mu^-$  with  $1 \text{ fb}^{-1}$  of 2012 data*  
F. Archilli *et al.*, LHCb-ANA-2012-081
- *Measurement of the cross section for  $Z \rightarrow \mu\mu$  production in  $pp$  collisions at  $\sqrt{s}=7$  TeV with the 2011 data*  
J. Anderson, W. Barter, A. Bursche, K. Müller, R. J. Wallace, LHCb-ANA-2012-025
- *Graphical comparison of the LHCb measurement of  $W$  and  $Z$  boson production with ATLAS and CMS*  
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- *Measurement of the relative  $Z$  plus jet cross section*  
LHCb collaboration, LHCb-CONF-2012-016
- *Measurement of the relative  $Z$  plus jet cross section*  
A. Bursche, W. Barter, LHCb-ANA-2012-006
- *Angular analysis of  $B^0 \rightarrow K^* \mu^+ \mu^-$  at LHCb with  $1 \text{ fb}^{-1}$*   
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- *Measurement of new angular observables in the decay  $B^0 \rightarrow K^* \mu^+ \mu^-$*   
M. De Cian, N. Serra, LHCb-ANA-2013-006
- *Measurement of the fragmentation fraction ratio  $f_s/f_d$  and its dependence on  $B$  meson kinematics*  
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#### Conference contributions

- Albert Bursche: *Particle production in the forward region*  
Lake Louise Winter Institute, Lake Louise, Alberta, Canada, 17 - 23 February 2013



- Nicola Chiapolini: *Electroweak physics, QCD and jets in the forward region*  
Cracow Epiphany conference on the Physics after the First Phase of the LHC, 7 - 9 January 2013, Cracow, Poland
- Olaf Steinkamp: *CP Violation at LHCb*  
International Workshop on Discovery Physics at the LHC, Kruger, South Africa, 3 - 7 December 2012
- Katharina Müller: *Measurements with electroweak bosons in the forward region at LHCb*  
DESY physics seminars, Hamburg and Berlin, Germany, 27 and 28 November 2012
- Christian Elsasser: *The LHCb Silicon Tracker - Performance & Radiation Damage*  
9th International Conference on Radiation Effects on Semiconductor Materials, Detectors and Devices, Florence, Italie, 9 - 12 October 2012
- Michel De Cian: *Physics with electroweak penguins at LHCb*  
7th International Workshop on the CKM Unitarity Triangle, Cincinnati, Ohio, USA, 28 September - 2 October 2012
- Mark Tobin: *Performance of the LHCb Tracking Detectors*  
Vertex 2012, Jeju, Republic of Korea, 16 - 21 September 2012
- Michel De Cian: *Rare B decays at LHCb*  
CHIPP annual plenary meeting, Karthause Ittingen, 13 - 14 September 2012
- Katharina Müller: *Measurements with electroweak bosons at LHCb*  
QCD@LHC, East-Lansing, Michigan, USA, 19 - 24 August 2012
- Jonathan Anderson: *Measurements with electroweak bosons at LHCb*  
International Conference on High Energy Physics 2012, Melbourne, Australia, July 2012
- Albert Bursche: *QCD and electroweak measurements at LHCb*  
HSQCD, Gatchina, Russia, July 4 - July 8, 2012
- Christian Elsasser: *Search for the Rare Decays  $B_{(s)}^0 \rightarrow \mu^+ \mu^-$  at LHCb*  
Annual meeting of the Swiss Physical Society, Zürich, 22 June 2012
- Katharina Müller: *Electroweak results at LHCb*  
CERN seminar, Geneva Switzerland, 5 June 2012
- Nicola Serra:  *$B_s \rightarrow \mu\mu$  and  $B \rightarrow K^* \mu\mu$*   
Flavour Physics and CP Violation (FPCP) 2012, Hefei, Anhui, China, 21 - 25 May 2012, proceedings published online on SLAC-eConf <http://www.slac.stanford.edu/econf/editors.html>
- Michel De Cian: *Rare electroweak penguin decays at LHCb*  
LHCb-Theory Workshop: Implications of LHCb measurements and future prospects, CERN, Switzerland, 16 - 18 April 2012
- Katharina Müller: *Electroweak results at LHCb*  
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- Jonathan Anderson: *Inclusive low mass Drell-Yan production in the forward region at  $\sqrt{s} = 7$  TeV*  
XX International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2012), Bonn, Virginia, Germany, 11 - 15 April 2012
- Albert Bursche: *Jet reconstruction with LHCb*  
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## Theses

- *Measurement of Asymmetries in the Decay  $B^0 \rightarrow K^{*0} \mu^+ \mu^-$  at the LHCb experiment*  
Marco Tresch, Master thesis, Universität Zürich, August 2012.

- *Study of charge sharing in the LHCb Tracker Turicensis using proton-proton collisions at the LHC*  
Philipp Gloor, Bachelor thesis, Universität Zürich, May 2012.

## 20.1.9 CMS

### Articles

- *Search for contact interactions using the inclusive jet  $p_T$  spectrum in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, Phys. Rev. D **87**, 052017 (2013)
- *On the mass and spin-parity of the Higgs boson candidate via its decays to Z boson pairs*  
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- *Search for new physics in events with same-sign dileptons and b jets in  $pp$  collisions at  $\sqrt{s} = 8$  TeV*  
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- *Search for pair production of third-generation leptoquarks and top squarks in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
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- *Observation of a new boson with mass near 125 GeV in pp collisions at  $\sqrt{s} = 7$  and 8 TeV*  
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- *Measurement of the top-antitop production cross section in the tau+jets channel in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.5755
- *Measurement of  $W+W-$  and  $ZZ$  production cross sections in  $pp$  collisions at  $\sqrt{s}=8$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.4698
- *Search for physics beyond the standard model in events with tau leptons, jets, and large transverse momentum imbalance in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.3792
- *Interpretation of searches for supersymmetry with simplified models*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.2175
- *Event shapes and azimuthal correlations in  $Z +$  jets events in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.1646
- *Search for supersymmetry in events with opposite-sign dileptons and missing transverse energy using an artificial neural network*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1301.0916
- *Search for supersymmetry in  $pp$  collisions at  $\sqrt{s} = 7$  TeV in events with a single lepton, jets, and missing transverse momentum*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1212.6428
- *Measurements of differential jet cross sections in proton-proton collisions at  $\sqrt{s} = 7$  TeV with the CMS detector*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1212.6660
- *Inclusive search for supersymmetry using the razor variables in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1212.6961
- *Search for heavy resonances in the  $W/Z$ -tagged dijet mass spectrum in  $pp$  collisions at 7 TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1212.1910
- *Search for long-lived particles decaying to photons and missing energy in proton-proton collisions at  $\sqrt{s} = 7$  TeV*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1212.1838
- *Identification of  $b$ -quark jets with the CMS experiment*  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1211.4462

- Search for  $Z'$  resonances decaying to  $t\bar{t}$  in dilepton+jets final states in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1211.3338
- Measurement of differential top-quark pair production cross sections in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1211.2220
- Search for a non-standard-model Higgs boson decaying to a pair of new light bosons in four-muon final states  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1210.7619
- Measurement of the inelastic proton-proton cross section at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1210.6718
- Search for fractionally charged particles in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1210.2311
- Search for supersymmetry in events with photons and low missing transverse energy in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, Phys. Lett. B.
- Search for anomalous production of highly boosted  $Z$  bosons decaying to dimuons in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, Phys. Lett. B.
- Evidence for associated production of a single top quark and  $W$  boson in  $pp$  collisions at 7 TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, Phys. Rev. Lett.
- Measurement of the  $Y(1S)$ ,  $Y(2S)$  and  $Y(3S)$  polarizations in  $pp$  collisions at  $\sqrt{s} = 7$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1209.2922
- Measurement of the azimuthal anisotropy of neutral pions in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV  
CMS-Collaboration, S. Chatrchyan *et al.*, arXiv:1208.2470

## Lectures

- Vincenzo Chiochia: *Measurements of top quark properties and decays at the Tevatron and LHC*  
Flavor Physics and CP violation conference, Hefei, China, 21 May 2012.
- Vincenzo Chiochia: *Observation of a new  $\Xi_b$  baryon with the CMS experiment*  
Colloquium on Particle Physics, PSI, Villigen, Switzerland, 18 October 2012.
- Vincenzo Chiochia: *Rare B decays at LHC and Tevatron*  
Hadron Collider Physics Symposium, Kyoto, Japan, 12 November 2012.
- Vincenzo Chiochia: *Heavy flavor physics with the CMS experiment*  
Saha Institute for Nuclear Physics (Kolkata), Indian Institute of Technology and Tata Institute of Fundamental Research (Mumbai), 5 – 8 March 2013.
- Simon de Visscher: *Heavy flavor production in association with vector bosons at CMS*  
Workshop of the LHC Electroweak working group, CERN, 2 April 2012.
- Simon de Visscher: *Heavy flavor production in association with vector bosons in CMS*  
36th International Conference on High Energy Physics, Melbourne, Australia, 4 July 2012.
- Carlotta Favaro: *Angular correlation between B-hadrons produced in association with a Z boson at the CMS experiment*  
Swiss Physical Society, ETH-Zurich, 22 June 2012.
- Carlotta Favaro: *Heavy flavor and vector bosons associated production at CMS*  
16th International Conference in Quantum Chromodynamics, Montpellier, France, 2 July 2012.
- Carlotta Favaro: *Vector boson and heavy flavor associated production at CMS*  
Lake Louise Winter Institute, Lake Louise, Canada, 17 February 2013.
- Mirena Ivova Rikova: *b-baryon studies at the CMS Experiment*  
Swiss Physical Society, ETH-Zurich, 22 June 2012.



- Barbara Millán Mejías: *Measurement of lifetime difference  $\Delta\Gamma_s$  in the decay  $B_s \rightarrow J/\psi\phi \rightarrow \mu^+\mu^-K^+K^-$*   
Swiss Physical Society, ETH-Zurich, 22 June 2012.
- H. Snoek: *Production of  $b$  hadrons and  $b$ -jet cross sections at CMS*  
Heavy Flavor Production Workshop, Berkeley, USA, 14 January 2013.
- Mauro Verzetti: *Search for 2HDM Higgs boson decaying into  $\tau$  pairs at CMS*  
Swiss Physical Society, ETH-Zurich, 22 June 2012.

### 20.1.10 Miscellaneous

#### Articles

- *Further Evidence for Low Energy Protonium Production in Vacuum*  
E. Lodi Rizzini *et al.* (ATHENA Collaboration), Eur. Phys. J. **Plus** (2012) 127.
- *The Review of Particle Physics*  
J. Beringer *et al.* (Particle Data Group), Phys. Rev. **D86** (2012) 010001.
- *Note on scalar mesons below 2 GeV*  
C. Amsler, S. Eidelman, T. Gutsche, C. Hanhart, S. Spanier and N. A. Törnqvist, Phys. Rev. **D86** (2012) 706.
- *The  $\eta(1405)$ ,  $\eta(1475)$ ,  $f_1(1420)$ , and  $f_1(1510)$*   
C. Amsler and A. Masoni, Phys. Rev. **D86** (2012) 759.
- *Quark Model*  
C. Amsler, T. DeGrand and B. Krusche, Phys. Rev. **D86** (2012) 199.
- *Recent studies of top quark properties and decays at hadron colliders*  
V. Chiochia, Mod. Phys. Lett. **A 27** (2012) 1230036.
- *Studies of rare  $B$  hadron decays to leptons at hadron colliders*  
V. Chiochia, arXiv:1302.2205

#### Article in press

- *Heavy flavour and vector bosons associated production*  
C. Favaro. CMS CR -2012/185.

#### Lectures

- A. van der Schaaf: *Lepton and Meson Decay beyond the Standard Model*  
two lectures at the FANTOM International Research School, Leuven, Belgium, June 4 - 8 2012.
- L. Baudis: *Die dunkle Seite des Universums*  
Flying Science, Verkehrsdepartement Basel, December 20, 2012.
- L. Baudis: *Geheimnisse des dunklen Universums*  
Thematische Kaffeepause, Swiss National Foundation, Bern, December 10, 2012.
- L. Baudis: *Dunkle Materie*  
Lecture for high-school teachers, Fachkonferenz Physik, Kantonsschule Enge, Zurich, November 15, 2012.
- L. Baudis: *Dunkle Materie im Universums*  
Ringvorlesung: die Welt der Quanten, Volkshochschule Zurich, May 30, 2012.
- L. Baudis: *Die dunkle Seite des Universums*  
Astronomische Gesellschaft Bern, Bern University, May 28, 2012.

## 20.2 Condensed matter

### 20.2.1 Superconductivity and Magnetism

#### Articles

- *Pressure-induced ferromagnetism in antiferromagnetic  $\text{Fe}_{1.03}\text{Te}$*   
M. Bendele, A. Maisuradze, B. Roessli, S.N. Gvasaliya, E. Pomjakushina, S. Weyeneth, K. Conder, H. Keller, and R. Khasanov, *Phys. Rev. B* **87**, 060409(R) (2013).
- *Vortex lock-in transition coinciding with the 3D to 2D crossover in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$*   
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, and H. Keller, *Phys. Rev. B* **86**, 174502 (2012).
- *Erratum: Vortex lock-in transition coinciding with the 3D to 2D crossover in  $\text{YBa}_2\text{Cu}_3\text{O}_7$*   
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, and H. Keller, *Phys. Rev. B* **87**, 059901 (2013).
- *Hybrid paramagnon phonon modes at elevated temperatures in  $\text{EuTiO}_3$*   
A. Bussmann-Holder, Z. Guguchia, J. Köhler, H. Keller, A. Shengelaya, and A.R. Bishop, *New Journal of Physics* **14**, 093013 (2012).
- *Isotope and multiband effects in layered superconductors*  
A. Bussmann-Holder, and H. Keller, *J. Phys.: Condens. Matter* **24**, 233201 (2012).
- *Polaron signatures in the phonon dispersion of high-temperature superconducting copper oxides*  
A. Bussmann-Holder, A. Simon, H. Keller, and A.R. Bishop, *Europhys. Lett.* **101**, 47004 (2013).
- *Direct Observation of the Quantum Critical Point in Heavy Fermion  $\text{CeRhSi}_3$*   
N. Egetenmeyer, J.L. Gavilano, A. Maisuradze, S. Gerber, D.E. MacLaughlin, G. Seyfarth, D. Andreica, A. Desilets-Benoit, A.D. Bianchi, Ch. Baines, R. Khasanov, Z. Fisk, and M. Kenzelmann, *Phys. Rev. Lett.* **108**, 177204 (2012).
- *Conventional superconductivity and hysteretic Campbell penetration depth in single crystals  $\text{MgCNi}_3$*   
R. T. Gordon, N. D. Zhigadlo, S. Weyeneth, S. Katrych, and R. Prozorov, *Phys. Rev. B.* **87**, 094520 (2013).
- *Magnetic field enhanced structural instability in  $\text{EuTiO}_3$*   
Z. Guguchia, H. Keller, J. Köhler, and A. Bussmann-Holder, *J. Phys.: Condens. Matter* **24**, 492201 (2012).
- *Tuning the structural instability of  $\text{SrTiO}_3$  by Eu doping: The phase diagram of  $\text{Sr}_{1-x}\text{Eu}_x\text{TiO}_3$*   
Z. Guguchia, A. Shengelaya, H. Keller, J. Köhler, and A. Bussmann-Holder, *Phys. Rev. B* **85**, 134113 (2012).
- *Muon-Spin Rotation and Magnetization Studies of Chemical and Hydrostatic Pressure Effects in  $\text{EuFe}_2(\text{As}_{1-x}\text{P}_x)_2$*   
Z. Guguchia, A. Shengelaya, A. Maisuradze, L. Howald, Z. Bukowski, M. Chikovani, H. Luetkens, S. Katrych, J. Karpinski, and H. Keller, *J. Supercond. Nov. Magn.* **26**, 285-295 (2013).
- *Muon-Spin Rotation Measurements of an Unusual Vortex-Glass Phase in the Layered Superconductor  $\text{Bi}_{2.15}\text{Sr}_{1.85}\text{CaCu}_2\text{O}_{8+\delta}$*   
D.O.G. Heron, S.J. Ray, S.J. Lister, C.M. Aegerter, H. Keller, P.H. Kes, G.I. Menon, and S.L. Lee, *Phys. Rev. Lett.* **110**, 107004 (2013).
- *Strong Pressure Dependence of the Magnetic Penetration Depth in Single Crystals of the Heavy-Fermion Superconductor  $\text{CeCoIn}_5$  Studied by Muon Spin Rotation*  
L. Howald, A. Maisuradze, P. Dalmas de Réotier, A. Yaouanc, C. Baines, G. Lapertot, K. Mony, J.-P. Brison, and H. Keller, *Phys. Rev. Lett.* **110**, 017005 (2013).
- *Effect of external pressure on  $T_c$  of as-grown and thermally treated superconducting  $\text{Rb}_x\text{Fe}_{2-y}\text{Se}_2$  single crystals*  
M. Kanagaraj, A. Krzton-Maziopa, G. Kalai Selvan, E. Pomjakushina, K. Conder, S. Weyeneth, R. Puzniak, and S. Arumugam, *Phys. Stat. Sol.* **7**, 218 (2013).
- *Effect of pressure on the Cu and Pr magnetism in  $\text{Nd}_{1-x}\text{Pr}_x\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$  investigated by muon spin rotation*  
A. Maisuradze, B. Graneli, Z. Guguchia, A. Shengelaya, E. Pomjakushina, K. Conder, and H. Keller, *Phys. Rev. B* **87**, 054401 (2013).

- *Superconducting parameters of  $BaPt_{4-x}Au_xGe_{12}$  filled skutterudite*  
A. Maisuradze, R. Gumeniuk, W. Schnelle, M. Nicklas, C. Baines, R. Khasanov, A. Amato, and A. Leithe-Jasper, *Phys. Rev. B* **86**, 174513 (2012).
- *Magnetoelectric Coupling in Single Crystal  $Cu_2OSeO_3$  Studied by a Novel Electron Spin Resonance Technique*  
A. Maisuradze, A. Shengelaya, H. Berger, D.M. Djokić, and H. Keller, *Phys. Rev. Lett.* **108**, 247211 (2012).
- *Magnetic form factor, field map, and field distribution for a BCS type-II superconductor near its  $B_{c2}(T)$  phase boundary*  
A. Maisuradze and A. Yaouanc, *Phys. Rev. B* **87**, 134508 (2013).
- *Relaxation of the shallow acceptor center in germanium*  
T.N. Mamedov, A.S. Baturin, V.N. Duginov, K.I. Gritsaj, R. Khasanov, A. Maisuradze, and A.V. Stoykov, *JETP Letters* **95**, 662 (2012).
- *Effect of external pressure on the magnetic properties of  $LnFeAsO$  ( $Ln = La, Ce, Pr, Sm$ )*  
R. De Renzi, P. Bonfà, M. Mazzani, S. Sanna, G. Prando, P. Carretta, R. Khasanov, A. Amato, H. Luetkens, M. Bendele, F. Bernardini, S. Massidda, A. Palenzona, M. Tropeano, and M. Vignolo, *Supercond. Sci. Technol.* **25**, 084009 (2012).
- *Superfluid density and superconducting gaps of  $RbFe_2As_2$  as a function of hydrostatic pressure*  
Z. Shermadini, H. Luetkens, A. Maisuradze, R. Khasanov, Z. Bukowski, H.-H. Klauss, and A. Amato, *Phys. Rev. B* **86**, 174516 (2012).
- *Hidden magnetic order in  $CuNCN$*   
A.A. Tsirlin, A. Maisuradze, J. Sichelschmidt, W. Schnelle, P. Höhn, R. Zinke, J. Richter, and H. Rosner, *Phys. Rev. B* **85**, 224431 (2012).
- *Spin excitations and electron paramagnetic resonance in two-layer antiferromagnetic system  $Y_{1-x}Yb_xBa_2Cu_3O_{6+y}$*   
A.A. Vishina, A. Maisuradze, A. Shengelaya, B.I. Kochelaev, and H. Keller, *J. Phys.: Conf. Ser.* **394**, 012014 (2012).
- *An endohedral single-molecule magnet with long relaxation times:  $DySc_2N@C_{80}$*   
R. Westerström, J. Dreiser, C. Piamonteze, M. Muntwiler, S. Weyeneth, H. Brune, S. Rusponi, F. Nolting, A. Popov, S.-F. Yang, L. Dunsch, and T. Greber, *J. Am. Chem. Soc.* **134**, 9840-9843 (2012).
- *Superconductivity and magnetism in  $Rb_xFe_{2-y}Se_2$ : Impact of thermal treatment on mesoscopic phase separation*  
S. Weyeneth, M. Bendele, F. von Rohr, P. Dłuzewski, R. Puzniak, A. Krzton-Maziopa, S. Bosma, Z. Guguchia, R. Khasanov, Z. Shermadini, A. Amato, E. Pomjakushina, K. Conder, A. Schilling, and H. Keller, *Phys. Rev. B* **86**, 134530 (2012).
- *Influence of short-range spin correlations on the  $\mu SR$  polarization functions in the slow dynamic limit: Application to the quantum spin-liquid system  $Yb_2Ti_2O_7$*   
A. Yaouanc, A. Maisuradze, and P. Dalmas de Réotier, *Phys. Rev. B* **87**, 134405 (2013).
- *High-pressure flux growth, structural, and superconducting properties of  $LnFeAsO$  ( $Ln = Pr, Nd, Sm$ ) single crystals*  
N. D. Zhigadlo, S. Weyeneth, S. Katrych, P. J. W. Moll, K. Rogacki, S. Bosma, R. Puzniak, J. Karpinski, and B. Batlogg, *Phys. Rev. B* **86**, 214509 (2012).

#### Conference reports

- *Magnetic field tuned anisotropy in  $Rb_xFe_{2-y}Se_2$*   
S. Bosma, R. Puzniak, A. Krzton-Maziopa, M. Bendele, E. Pomjakushina, K. Conder, H. Keller, and S. Weyeneth, Annual meeting of the Swiss Physical Society, Zürich, Switzerland, June 21 - 22, 2012.
- *Muon-spin rotation and magnetization studies of chemical and hydrostatic pressure effects in  $EuFe_2(As_{1-x}P_x)_2$*   
Z. Guguchia, A. Shengelaya, A. Maisuradze, L. Howald, S. Weyeneth, Z. Bukowski, M. Chikovani, H. Luetkens, S. Katrych, J. Karpinski, and H. Keller, Annual meeting of the Swiss Physical Society, Zürich, Switzerland, June 21 - 22, 2012.

- *$\mu$ SR investigation of magnetism and magnetoelectric coupling in  $\text{Cu}_2\text{OSeO}_3$*   
A. Maisuradze, Z. Guguchia, B. Graneli, H. M. Rønnow, H. Berger, and H. Keller,  
Annual meeting of the Swiss Physical Society, Zürich, Switzerland, June 21 - 22, 2012.
- *Pressure dependence of the penetration depth in  $\text{CeCoIn}_5$  studied by muon spin rotation*  
L. Howald, Annual meeting of the Swiss Physical Society, Zürich, Switzerland, June 21 - 22, 2012.
- *Tuning the static spin-stripe phase and superconductivity in  $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$  ( $x = 1/8$ ) by hydrostatic pressure*  
Z. Guguchia, 5th Georgian-German School and Workshop in Basic Science, Tbilisi State University, Georgia, August 6 - 10, 2012.
- *Effect of photo-induced hole doping on the Meissner screening in underdoped  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$*   
E. Stilp, A. Suter, E. Morenzoni, T. Prokscha, Z. Salman, H. Keller, P. Pahlke, R. Hühne, J. C. Baglo, R. Liang, and R. F. Kiefl, German Physical Society (DPG) Spring Meeting, Regensburg, Germany, March 10 - 15, 2013.
- *Vortex lock-in transition coinciding with the 3D to 2D crossover in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$*   
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, and H. Keller,  
APS March Meeting, Baltimore, USA, March 18 - 22, 2013.
- *Magnetic field enhanced structural instability in  $\text{EuTiO}_3$*   
Z. Guguchia, APS March Meeting, Baltimore, USA, March 18 - 22, 2013.
- *Tuning the static spin-stripe phase and superconductivity in  $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$  ( $x = 1/8$ ) by hydrostatic pressure*  
Z. Guguchia, APS March Meeting, Baltimore, USA, March 18 - 22, 2013.
- *Magnetoelectric Coupling in Single Crystal  $\text{Cu}_2\text{OSeO}_3$  Studied by a Novel Electron Spin Resonance Technique*  
A. Maisuradze, A. Shengelaya, H. Berger, D. M. Djokić, and H. Keller,  
Annual meeting of the American Physical Society, Baltimore, USA, March 18 - 22, 2013.
- *Strong pressure dependence of the magnetic penetration depth in single crystals of the heavy fermion system  $\text{CeCoIn}_5$  studied by muon spin rotation*  
L. Howald, A. Maisuradze, P. Dalmas de Réotier, A. Yaouanc, C. Baines, G. Lapertot, K. Mony, J.-P. Brison, and H. Keller, APS March Meeting, Baltimore, USA, March 18 - 22, 2013.

#### Invited lectures

- H. Keller: *The Race of Spins - the Raser*  
Institute for Biomedical Engineering, University and ETH Zurich, Zürich, Switzerland, April 20, 2012.
- M. Bendele: *Tuning the Superconducting and Magnetic Properties of  $\text{Fe}_y\text{Se}_{1-x}\text{Te}_x$*   
Int. Conference on Superconductivity and Magnetism, ICSM 2012, Istanbul, Turkey, April 29 - May 4, 2012.
- H. Keller: *Isotope and pressure effects in layered high-temperature superconductors*  
Int. Conference on Superconductivity and Magnetism, ICSM 2012, Istanbul, Turkey, April 29 - May 4, 2012.
- S. Weyeneth: *Interplay of anisotropic superconductivity and magnetism in iron-based compounds*  
Int. Conference on Superconductivity and Magnetism, ICSM 2012, Istanbul, Turkey, April 29 - May 4, 2012.
- Z. Guguchia: *Muon Spin Rotation technique and its applications in superconductivity and magnetism*  
5th Georgian-German School and Workshop in Basic Science, Batumi State University, Georgia, August 13 - 17, 2012.
- A. Maisuradze: *Muon spin rotation ( $\mu$ SR) and ferromagnetic resonance (FMR) study of magneto-electric  $\text{Cu}_2\text{OSeO}_3$*   
Institute of Condensed Matter Physics, EPF Lausanne, Switzerland, February 27, 2013.
- A. Maisuradze and H. Keller: *Pressure effects in cuprate and iron-based superconductors studied by muon spin rotation*  
Annual meeting of the American Physical Society, Baltimore, USA, March 18 - 22, 2013.
- H. Keller: *Pressure effects in unconventional superconductors studied by muon spin rotation*  
Int. Conference on Study of Matter at Extreme Conditions, SMEC 2013, Miami, USA, March 23 - 30, 2013.

## 20.2.2 Phase transitions and superconducting photon detectors

## Articles

- *Ultra-thin TaN films for superconducting nanowire single-photon detectors*  
K. Il'in, M. Hofherr, D. Rall, M. Siegel, A. Semenov, A. Engel, K. Inderbitzin, A. Aeschbacher and A. Schilling, *J. Low. Temp. Phys.* **167** (2012) 809.
- *On Josephson effects in insulating spin systems*  
A. Schilling and H. Grundmann, *Annals of Physics* **327** (2012) 2301-2309.
- *Magneto-resistivity of thin  $YBa_2Cu_3O_{7-\delta}$  films on sapphire substrate*  
P. Probst, K. Il'in, A. Engel, A. Semenov, H.-W. Hübers, J. Hänisch, B. Holzapfel and M. Siegel, *Physica C* **479** (2012) 173-175.
- *Synthesis of a new alkali metal-organic solvent intercalated iron selenide superconductor with  $T_c \approx 45$  K*  
A. Krzton-Maziopa, E.V. Pomjakushina, V.Yu. Pomjakushin, F. von Rohr, A. Schilling and K. Conder, *J. Phys.: Condens. Matter* **24** (2012) 382202.
- *Emergence of superconductivity in  $BaNi_2(Ge_{1-x}P_x)_2$  at a structural instability*  
D. Hirai, F. von Rohr, and R.J. Cava, *Phys. Rev. B* **86** (2012) 100505(R).
- *An ultra-fast superconducting Nb nanowire single-photon detector for soft X-rays*  
K. Inderbitzin, A. Engel, A. Schilling, K. Il'in and M. Siegel, *Appl. Phys. Lett.* **101** (2012) 162601.
- *Dependence of count rate on magnetic field in superconducting thin-film TaN single-photon detectors*  
A. Engel, A. Schilling, K. Il'in and M. Siegel, *Phys. Rev. B* **86** (2012) 140506(R).
- *Superconductivity and magnetism in  $Rb_xFe_{2-y}Se_2$ : Impact of thermal treatment on mesoscopic phase separation*  
S. Weyeneth, M. Bendele, F. von Rohr, P. Dłuzewski, R. Puzniak, A. Krzton-Maziopa, S. Bosma, Z. Guguchia, R. Khasanov, Z. Shermadini, A. Amato, E. Pomjakushina, K. Conder, A. Schilling and H. Keller, *Phys. Rev. B* **86** (2012) 134530.
- *The effects of disorder in dimerized quantum magnets in mean field approximations*  
A. Rakhimov, S. Mardonov, E.Ya. Sherman and A. Schilling, *New J. Phys.* **14** (2012) 113010.
- *Estimates for the thermodynamic signatures of vortex-lattice melting in conventional superconductors*  
O. Bossen and A. Schilling, *Physica C* **483** (2012) 201-206.
- *Experimental tests for macroscopic phase coherence in magnetic-quasiparticle condensates of insulating spin systems*  
A. Schilling, H. Grundmann and R. Dell'Amore, *J. Phys.: Conf. Ser.* **400** (2012) 032081.
- *Single-crystal growth and thermoelectric properties of  $Ge(Bi,Sb)_4Te_7$*   
F. von Rohr, A. Schilling, and R.J. Cava, *J. Phys.: Condens. Matter* **25** (2013) 075804.
- *Soft X-ray single-photon detection with superconducting tantalum nitride and niobium nanowires*  
K. Inderbitzin, A. Engel and A. Schilling, *IEEE Trans. Appl. Supercond.* **23** (2013) 2200505.
- *Temperature-dependence of detection efficiency in NbN and TaN SNSPD*  
A. Engel, K. Inderbitzin, A. Schilling, R. Lusche, A. Semenov, H.-W. Hübers, D. Henrich, M. Hofherr, K. Il'in and M. Siegel, *IEEE Trans. Appl. Supercond.* **23** (2013) 2300505.

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## Article in press

- *Structure and magnetic interaction in the solid solution  $Ba_{3-x}Sr_xCr_2O_8$*   
H. Grundmann, A. Schilling, C.A. Marjerrison, H.A. Dabkowska and B.D. Gaulin, *Mat. Res. Bull.*

## Contributed Conference Presentations

- *Mixed crystals from the quantum magnets  $Ba_3Cr_2O_8$  and  $Sr_3Cr_2O_8$  (Poster)*  
H. Grundmann, SPG Jahrestagung, ETH Zürich, 21./22.6.2012.

- *A thermal LC-circuit for measuring heat capacities (Poster)*  
O. Bossen, SPG Jahrestagung, ETH Zürich, 21./22.6.2012.
- *Ultrafast X-ray photon detection with niobium and TaN X-SNSPDs (Poster)*  
K. Inderbitzin, SPG Jahrestagung, ETH Zürich, 21./22.6.2012.
- *Temperature-Dependence of Detection Efficiency in NbN and TaN SNSPD (Poster)*  
A. Engel, SPG Jahrestagung, ETH Zürich, 21./22.6.2012.
- *Ultrafast Soft X-Ray Superconducting Nanowire Single-Photon Detectors*  
K. Inderbitzin, Trends in NanoTechnology 2012, Madrid (Spain), 12.9.2012.
- *X-Ray Single-Photon Detection With TaN and Niobium X-SNSPDs (Poster)*  
K. Inderbitzin, Applied Superconductivity Conference 2012, Portland (OR, USA), 11.10.2012.
- *Temperature-dependence of detection efficiency in NbN and TaN SNSPD*  
A. Engel, Applied Superconductivity Conference 2012, Portland (OR, USA), 11.10.2012.

### 20.2.3 Surface Physics

#### Articles

- *Three-dimensional spin rotation at the Fermi surface of a strongly spin-orbit coupled surface system*  
P. Höpfner, J. Schäfer, A. Fleszar, J. H. Dil, B. Slomski, F. Meier, C. Loho, C. Blumenstein, L. Patthey, W. Hanke, R. Claessen, Phys. Rev. Lett. 108, 186801:1-5 (2012).
- *An endohedral single-molecule magnet with long relaxation times: DyScN@C<sub>80</sub>*  
R. Westerström, J. Dreiser, C. Piamonteze, M. Muntwiler, S. Weyeneth, H. Brune, S. Rusponi, F. Nolting, A. Popov, S. F. Yang, L. Dunsch, T. Greber, J. Am. Chem. Soc. 134, 9840-9843 (2012).
- *Attosecond transversal streaking to probe electron dynamics at surfaces*  
L. Castiglioni, D. Leuenberger, M. Greif, and M. Hengsberger, in K. Yamanouchi and K. Midorikawa (eds.), *Multiphoton processes and attosecond physics*, Springer Proceedings in Physics 125, pp 365-368, Springer (Berlin, Heidelberg, 2012).
- *Adsorption of silicon on Au(110): An ordered two-dimensional surface alloy*  
H. Enriquez, A. Mayne, A. Kara, S. Vizzini, S. Roth, B. Lalmi, A. P. Seitsonen, B. Aufray, T. Greber, R. Belkhou, G. Dujardin, and H. Oughaddou, Appl. Phys. Lett. 101, 021605:1-5 (2012).
- *Hedgehog spin texture and Berry's phase tuning in a magnetic topological insulator*  
S.-Y. Xu, M. Neupane, C. Liu, D. Zhang, A. Richardella, L. A. Wray, N. Alidoust, M. Leandersson, T. Balasubramanian, J. Sanchez-Barriga, O. Rader, G. Landolt, B. Slomski, J. H. Dil, J. Osterwalder, T. R. Chang, H. T. Jeng, H. Lin, A. Bansil, N. Samarth, and M. Z. Hasan, Nature Physics 8, 616-622 (2012).
- *Disentanglement of surface and bulk Rashba spin splittings in non-centrosymmetric BiTeI*  
G. Landolt, S. V. Eremeev, Y. M. Koroteev, B. Slomski, S. Muff, T. Neupert, M. Kobayashi, V. N. Strocov, T. Schmitt, Z. S. Aliev, M. B. Babanly, I. R. Amiraslanov, E. V. Chulkov, J. Osterwalder, and J. H. Dil, Phys. Rev. Lett. 109, 116403:1-5 (2012).
- *Electronic structure of an organic/metal interface: pentacene/Cu(110)*  
K. Müller, A. P. Seitsonen, T. Brugger, J. Westover, T. Greber, T. Jung, A. Kara, J. Phys. Chem. C 116, 23465-23471 (2012).
- *Chiral distortion of confined ice oligomers (n=5,6)*  
H. F. Ma, Y. Ding, M. Iannuzzi, T. Brugger, S. Berner, J. Hutter, J. Osterwalder, T. Greber, Langmuir 28, 15246-15250 (2012).

- *Observation of a topological crystalline insulator phase and topological phase transition in  $Pb_{1-x}Sn_xTe$*   
S.-Y. Xu, C. Liu, N. Alidoust, M. Neupane, D. Qian, I. Belopolski, J. D. Denlinger, Y. J. Wang, H. Lin, L. A. Wray, G. Landolt, B. Slomski, J. H. Dil, A. Marcinkova, E. Morosan, Q. Gibson, R. Sankar, F. C. Chou, R. J. Cava, A. Bansil, and M. Z. Hasan, *Nature Communications* 3, 1192:1-9 (2012).
- *Fermi nesting between atomic wires with strong spin-orbit coupling*  
C. Tegenkamp, D. Lükermann, H. Pfnür, B. Slomski, G. Landolt, and J. H. Dil, *Phys. Rev. Lett.* 109, 266401:1-5 (2012).
- *Photoelectron diffraction in the x-ray and ultraviolet regime: Sn-phthalocyanine on Ag(111)*  
M. Greif, L. Castiglioni, A. P. Seitsonen, S. Roth, J. Osterwalder, and M. Hengsberger, *Phys. Rev. B* 87, 085429:1-10 (2013).
- *Excitation of coherent phonons in the one-dimensional Bi(114) surface*  
D. Leuenberger, H. Yanagisawa, S. Roth, J.H. Dil, J.W. Wells, P. Hofmann, J. Osterwalder, and M. Hengsberger, *Phys. Rev. Lett.* 110, 136806:1-5 (2013).

## Article in press

- *Immobilizing individual atoms beneath a corrugated single layer of boron nitride*  
H. Y. Cun, M. Iannuzzi, A. Hemmi, S. Roth, J. Osterwalder, and T. Greber, *Nano Letters*, in press (2012).

## PhD thesis

- *A spin- and angle-resolved photoemission study of the Rashba-Bychkov effect in lead quantum well states*  
Bartosz Slomski, PhD thesis, Physik-Institut, Universität Zürich, 2013.

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## Master theses

- *Lateral segregation in h-BN/PtRh(111)*  
Roland Stania, Master thesis, Physik-Institut, Universität Zürich, 2012.
- *Luminescence mapping of ordered silver nanoclusters on hexagonal boron nitride nanomesh*  
Carlo Bernard, Master thesis, Physik-Institut, Universität Zürich, 2012.
- *Angle-resolved photoemission spectroscopy of the topological insulator  $GeBi_{4-x}Sb_xTe_7$*   
Stefan Muff, Master thesis, Physik-Institut, Universität Zürich, 2013.

## Contributed conference presentations

- *Pb/Si(111) - a potential candidate for spin-based electronics*  
B. Slomski, Swiss Light Source Symposium, PSI Villigen, 03.04.12
- *Single-layer boron nitride at the 4-inch wafer scale (Poster)*  
A. Hemmi, Graphene-Week 2012, Delft, The Netherlands, 07.06.12
- *Self-assembled monolayers of endohedral single-molecule magnets (Poster)*  
R. Westerström, Sino-Swiss Science and Technology Cooperation (SSSTC) Workshop, Meielisalp BE, 12.06.12
- *Lateral segregation on h-BN/PtRh(111) (Poster)*  
R. Stania, Sino-Swiss Science and Technology Cooperation (SSSTC) Workshop, Meielisalp BE, 12.06.12
- *Photoelectron diffraction on SnPc/Ag(111) (Poster)*  
M. Greif, Annual Meeting of the Swiss Physical Society, ETH Zürich, 21.06.12
- *Probing interfacial electron transfer dynamics in the attosecond time domain*  
L. Castiglioni, Annual Meeting of the Swiss Physical Society, ETH Zürich, 22.06.12
- *Electron dynamics in a quasi-one-dimensional topological metal: Bi(114)*  
M. Hengsberger, Annual Meeting of the Swiss Physical Society, ETH Zürich, 22.06.12

- *Atomic structure visualization of graphite and monolayer graphene by photoelectron holography*  
F. Matsui, 7th Int. Workshop on Nano-Scale Spectroscopy, ETH Zürich, 04.07.12
- *Photoelectron diffraction spectroscopy for atomic site specific property analysis of surfaces and subsurfaces*  
F. Matsui, Int. Workshop on 3D Atomic Imaging of Nano-Scale Active Sites in Materials, Institute of Solid State Physics, University of Tokyo, Kashiwa, Japan, 07.08.12
- *Influence of the large unit cell on the electronic structure of topological insulators*  
J. H. Dil, Int. Conference on Electron Spectroscopy and Structure (ICESS-12), St. Malo, France, 17.09.12
- *Spin- and angle-resolved photoemission on the topological insulator  $PbBi_4Te_7$  (Poster)*  
G. Landolt, Int. Conference on Electron Spectroscopy and Structure (ICESS-12), St. Malo, France, 18.09.12
- *Disentanglement of the surface and bulk Rashba spin splitting in non-centrosymmetric  $BiTeI$  (Poster)*  
G. Landolt, Int. Conference on Electron Spectroscopy and Structure (ICESS-12), St. Malo, France, 18.09.12
- *Soft x-ray two-dimensional photoelectron structure factor analysis of graphite valence band by newly developed display-type analyzer*  
F. Matsui, Int. Conference on Electron Spectroscopy and Structure (ICESS-12), St. Malo, France, 18.09.12
- *Disentanglement of the surface and bulk Rashba spin splitting in non-centrosymmetric  $BiTeI$*   
G. Landolt, Swiss Light Source Symposium, PSI Villigen, 02.10.12
- *4f spin shuttles*  
T. Greber, Physik-Seminar, Universität Zürich, 22.11.12
- *Photoemission from solid surfaces in strong fields and on attosecond timescales: the first surface RABBITT*  
L. Castiglioni, NCCR MUST Assembly Meeting 2013, Engelberg, 08.01.13
- *Molecular dynamics and SSC calculations: a combined study on Fe-porphyrin/ $Ag(111)$  (Poster)*  
M. Greif, NCCR MUST Assembly Meeting 2013, Engelberg, 08.-10.01.13
- *Single-molecule magnets based on mixed metal nitride cluster fullerenes*  
R. Westerström, Quo Vadis Meeting, PSI Magnetism and Materials, Lungern, 24.01.13
- *$TbSc_2N@C_{80}/h-BN/Ni(111)$*   
R. Stania, Quo Vadis Meeting, PSI Magnetism and Materials, Lungern, 24.01.13
- *Graphene on  $Ru(0001)$*   
T. Greber, European Workshop on Epitaxial Graphene, Aussois, France, 28.01.13
- *Spin shuttles on surfaces ... and nanotents*  
T. Greber, 28th Workshop on High  $T_c$  and Novel Materials, Planneralp, Austria, 14.02.13
- *Coherent phonons in one-dimensional atomic chains:  $Bi(114)$*   
M. Hengsberger, Workshop on Short Time Dynamics in Strongly Correlated Electron Systems - Nonequilibrium13, Ruhr-Universität Bochum, Germany, 19.02.13
- *The role of dysprosium in single-molecule magnets based on mixed metal nitride cluster fullerenes*  
R. Westerström, Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Regensburg, Germany, 14.03.13

#### Invited lectures

- J. H. Dil: *What spin-orbit interaction teaches us: Rashba systems, topological insulators and correlated systems*  
Condensed Matter Physics Seminar, EPF Lausanne, 04.04.12
- J. Osterwalder: *Topological insulators - theory and experiment*  
Tutorial Lecture, Spring Meeting of the Materials Research Society, San Francisco, CA, USA, 09.04.12
- J. Osterwalder: *Probing the spin-momentum locking in topological insulators*  
Spring Meeting of the Materials Research Society, San Francisco, CA, USA, 10.04.12



- F. Matsui: *Photoelectron diffraction spectroscopy for subsurface atomic level characterization*  
Seminar, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany, 16.04.12
- J. H. Dil: *From quantum well states to topological insulators: spin-resolved ARPES on low-dimensional systems*  
Symposium for the 65th Birthday of Karsten Horn, Fritz-Haber-Institut, Berlin, Germany, 11.05.12
- T. Greber: *Fullerenes on surfaces: from charge switches to spin shuttles*  
XXXV Encontro Nacional de Física da Matéria Condensada, Aguas de Lindola, Brazil, 15.05.12
- J. H. Dil: *Spin-resolved ARPES on topological insulators and low-dimensional systems*  
Statistical Physics and Low-Dimensional Systems Conference, Pont-à-Mousson, France, 31.05.12
- J. Osterwalder: *Spin-polarized electrons on non-magnetic surfaces: from the Rashba effect to topological insulators*  
Münchner Physik-Kolloquium, Technische Universität München, 04.06.12
- F. Matsui: *Direct observation of Si adatom from O atom at the initial stage of Si(111) surface oxidation*  
Swiss Molecule-on-Surfaces (MolCH) Meeting, Bern, 11.06.12
- R. Westerström: *Towards surface supported endohedral single-ion magnets*  
Swiss Molecule-on-Surfaces (MolCH) Meeting, Bern, 11.06.12
- M. Hengsberger: *Ultrafast dynamics in electron emission from negative-electron-affinity diamondoid monolayers*  
Symposium Frontiers of Diamondoid Science, Stanford University, Stanford, CA, 18.06.12
- T. Greber: *Investigating the interplay of geometry and magnetism in spin shuttle molecules on surfaces*  
Annual Meeting of the Swiss Physical Society, ETH Zürich, 21.06.12
- F. Matsui: *Photoelectron diffraction microscopy/spectroscopy for the local structure and property analysis of surfaces*  
Swiss Light Source Seminar, PSI Villigen, 29.06.12
- T. Greber: *Fullerenes on surfaces: from C<sub>60</sub> to spin shuttles*  
Seminar, University of Science and Technology of China, Hefei, China, 04.07.12
- T. Greber: *sp<sup>2</sup> hybridized single-layer honeycomb templates*  
Int. Workshop on Nanomaterials and Nanodevices, Institute of Physics, Beijing, China, 09.07.12
- T. Greber: *Spin shuttles*  
Int. Workshop on Nanomaterials and Nanodevices, Xining, China, 12.07.12
- M. Greif: *Time resolved photoelectron diffraction (tr-PED) for measuring structural dynamics at surfaces*  
Seminar, Université de Bourgogne, Dijon, France, 12.07.12.
- T. Greber: *Functional fullerenes and endofullerenes on surfaces*  
Seminar, National Center for Nanoscience and Technology, Beijing, China, 18.07.12
- J. H. Dil: *Direct spectroscopic evidence of self-protecting topological states*  
CECAM Topological Materials Workshop, Bremen, Germany, 15.08.12
- T. Greber: *Carbon cage spin shuttles*  
24th Conference of the EPS Condensed Matter Division, Edinburgh, Scotland, 03.09.12
- J. Osterwalder: *Spin-polarized electrons on non-magnetic surfaces: from the Rashba effect to topological insulators*  
Int. Conference on Electron Spectroscopy and Structure (ICESS-12), St. Malo, France, 20.09.12
- J. Osterwalder: *Spin-resolved ARPES and resonant x-ray photoelectron diffraction at the SLS*  
25th MAX-lab Users Meeting, Lund, Sweden, 26.09.12
- J. H. Dil: *Spin-resolved ARPES research at the Swiss Light Source*  
2nd Int. School on Surface Science - Technologies and Measurements on Atomic Scale (SSS-TMAS-2), Khostka (Sochi), Russia, 01.10.12

- J. Osterwalder: *Molecular monolayers on well defined surfaces: structure, bonding and dynamics*  
Seminar, Physikalische Chemie, Universität Bern, 04.10.12
- J. H. Dil: *Disentangling the surface and bulk Rashba splittings in non-centrosymmetric BiTeI*  
PSI-IoP (Institute of Physics, Chinese Academy of Sciences) Workshop, Üetliberg, Zürich, 15.10.12
- T. Greber: *Bottom-up nanoscience with  $sp^2$  hybridized single-layer honeycomb lattices*  
Physics Seminar, University of Leiden, The Netherlands, 07.11.12
- J. H. Dil: *Spin-polarized states and topological protection studied by spin-resolved ARPES*  
Physics Seminar, Université de Paris-Sud, Orsay, France, 13.11.12
- T. Greber: *Ice assembly in the h-BN/Rh(111) nanomesh*  
Symposium on Surface and Nano Science (SSNS'13), Zhao, Japan, 16.01.13
- T. Greber: *From spin-shuttles to nano-tents*  
Quo Vadis Meeting, PSI Magnetism and Materials, Lungern, 25.01.13
- J. Osterwalder: *Spin-polarized electrons on non-magnetic surfaces: from the Rashba effect to topological insulators*  
Colloque en Physique, EPF Lausanne, 18.03.13

## 20.2.4 Physics of Biological Systems

### Articles

- *Non-destructive imaging of an individual protein*  
J.-N. Longchamp, T. Latychevskaia, C. Escher, and H.-W. Fink, Appl. Phys. Lett. 101(9), 093701 (2012). 103
- *When holography meets coherent diffraction imaging*  
T. Latychevskaia, J.-N. Longchamp, and H.-W. Fink, Opt. Express 20(27), 28871-28892 (2012).
- *Low-energy electron transmission imaging of clusters on free-standing graphene*  
J.-N. Longchamp, T. Latychevskaia, C. Escher, and H.-W. Fink, Appl. Phys. Lett. 101(11), 113117 (2012).
- *Ultraclean freestanding graphene by platinum-metal catalysis*  
J.-N. Longchamp, C. Escher, and H.-W. Fink, J. Vac. Sci. Technol. B 31(020605) (2013).
- *Coherent diffraction and holographic imaging of individual biomolecules using low-energy electrons*  
T. Latychevskaia, J.-N. Longchamp, C. Escher, and H.-W. Fink, in *Present and Future Methods for Biomolecular Crystallography*, Springer, 2013.
- *Resolution enhancement in digital holography by self-extrapolation of holograms*  
T. Latychevskaia and H.-W. Fink, Opt. Express 21(6), 7726-7733 (2013).
- *Fabrication of metallic double-gate field emitter arrays and their electron beam collimation characteristics*  
P. Helfenstein, K. Jefimovs, E. Kirk, C. Escher, H.-W. Fink, and S. Tsujino, Journal of Applied Physics 112(9), 093307 (2012).
- *Electron beam collimation with a 40 000 tip metallic double-gate field emitter array and in-situ control of nanotip sharpness distribution*  
P. Helfenstein, V. A. Guzenko, H.-W. Fink, and S. Tsujino, Journal of Applied Physics 113(4), 043306 (2013).

### Article in press

- *Pulsed electron holography*  
M. Germann, T. Latychevskaia, C. Escher, and H.-W. Fink, Appl. Phys. Lett. 102(20), 203115 (2013).

## Patent

- *Method for preparing a substantially clean monolayer of graphene*  
J.-N. Longchamp, C. Escher, and H.-W. Fink, Patent EP12189601.12189603 (2012).

## Oral presentations

- J.-N. Longchamp: *Probing the surface of graphene by means of low-energy electron coherent diffraction and holographic imaging*  
Symposium on Surface Science, Åre (Sweden), March 3-9, 2013.
- J.-N. Longchamp: *Coherent Low-energy (below 250eV) Electron Diffractive Imaging of Freestanding Graphene*  
Material Research Society Fall Meeting, Boston (USA), November 25-30, 2012.
- T. Latychevskaia: *Low-energy Electron Holograms and Diffraction Patterns of Individual Biomolecules*  
Material Research Society Fall Meeting, Boston (USA), November 25-30, 2012.
- T. Latychevskaia: *Coherent Low-Energy Electron Imaging - a New Tool For Structural Biology*  
45th Erice Crystallographic Course, Erice (Italy), May 31 - June 10, 2012.
- T. Latychevskaia: *When Holography Meets Coherent Diffraction Imaging*  
Digital Holography Meeting of The Optical Society of America, Miami (USA), April 28 - May 2, 2012.
- M. Saliba: *Fourier Transform Holography: A lensless non-destructive imaging technique*  
Poster presentation, Microscopy & Microanalysis 2012, Phoenix, Arizona, USA, July 29 - August 2, 2012.
- M. Saliba: *Fourier Transform Holography: A lensless non-destructive imaging technique*  
European Microscopy Congress, Manchester, UK, September 16-18, 2012.
- P. Helfenstein: *Electron Beam Properties of large Double Gate Field Emitter Arrays with an Optimized Collimation Gate Electrode Geometry*  
Poster presentation, Annual Meeting of the Swiss Physical Society, Zurich, Switzerland, 21.-22 June 2012.
- P. Helfenstein: *Electron Beam Characterization of Double Gate Field Emitter Arrays Fabricated by a Focused Ion Beam Assisted Process*  
Poster presentation, International Vacuum Nanoelectronics Conference, Jeju, Korea, 9-13 July 2012.
- P. Helfenstein: *Molybdenum Field Emitter Arrays for High-Brightness Electron Beams*  
Workshop on Cold Cathodes, Wuppertal, Germany, 3-4 September 2012.

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## Contributed Paper

- *Fourier Transform Holography: A lensless non-destructive imaging technique*  
M. Saliba, T. Latychevskaia, J.N. Longchamp, and H.-W. Fink, PS2.6, Proceedings of the 15th European Microscopy Congress.

## 20.2.5 Physical Systems Biology and non-equilibrium Soft Matter

## Articles

- *Integrating force-sensing and signaling pathways in a model for the regulation of wing imaginal disc size*  
T. Aegerter-Wilmsen, M.B. Heimlicher, A.C. Smith, P. Barbier de Reuille, R.S. Smith, C.M. Aegerter, and K. Basler, *Development* **139**, 3221 (2012).
- *In-vivo imaging of the Drosophila wing imaginal disc over time: novel insights on growth and boundary formation*  
U. Nienhaus, T. Aegerter-Wilmsen, and C.M. Aegerter, *PLoSOne* **7**, e47594 (2012).
- *Direct determination of the transition to localization of light in three dimensions.*  
T. Sperling, W. Bührer, C.M. Aegerter, and G. Maret, *Nature Photonics* **7**, 48 (2013).

- *Muon-Spin Rotation Measurements of an Unusual Vortex-Glass Phase in the Layered Superconductor  $\text{Bi}_{2.15}\text{Sr}_{1.85}\text{CaCu}_2\text{O}_{8+\delta}$* .  
D.O.G. Heron, S.J. Ray, S.J. Lister, C.M. Aegerter, H. Keller, P.H. Kes, G.I. Menon, and S.L. Lee,  
*Phys. Rev. Lett* **110**, 107004 (2013).

#### Articles in press

- *Velocity distributions of uniformly heated three dimensional granular gases*  
C.C. Maass, G. Maret, and C.M. Aegerter.
- *Mechanical Control of Organ Size in the Development of the Drosophila Wing Disc*  
T. Schluck, U. Nienhaus, T. Aegerter-Wilmsen, and C.M. Aegerter.
- *Coarsening dynamics of three dimensional levitated foams: from wet to dry*  
N. Isert, G. Maret, and C.M. Aegerter.

#### Theses

- *Non-linear effects in Anderson localization of light*  
W. Bühner, PhD thesis, Universität Konstanz, 2012.
- *Dynamics of levitated foams*  
N. Isert, PhD thesis, Universität Konstanz, 2013.

#### Conference reports

- *Mechanical growth regulation of Drosophila wing discs. (poster)*  
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck, M.B. Heimlicher, K. Basler and C.M. Aegerter,  
URPP Systemsbiology and functional Genomics conference; Brunnen, Switzerland (September 13-15, 2012).
- *Mechanical growth regulation of Drosophila wing discs. (poster)*  
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck, M.B. Heimlicher, K. Basler and C.M. Aegerter,  
EMBO tissue morphogenesis conference; Heidelberg, Germany (September 6-9, 2012).
- *Scattered light fluorescence microscopy in three dimensions*  
G. Ghielmetti and C.M. Aegerter, Annual Meeting of the Swiss Physical Society, Zürich, Switzerland (24.06.2012).

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#### Invited lectures

- C.M. Aegerter: *Scattered light fluorescence microscopy in three dimensions*  
Biomedical Optics and Photonics, Miami, USA (29.04.2012).
- C.M. Aegerter: *Mechanical growth control in the wing imaginal disc of Drosophila*  
Single Cell Physiology, Paris, France (23.07.2012).
- C.M. Aegerter: *Transition in the coarsening dynamics of foams with different liquid content*  
Swiss Soft Matter Day, Lausanne, Switzerland (29.10.2012).
- C.M. Aegerter: *Time resolved spatial width of photons in samples showing Anderson localization*  
MesolImage Workshop "Recent developments in wave propagation and imaging in complex media", Paris, France  
(07.11.2012).
- C.M. Aegerter: *Luft ist nicht Nichts*  
Project day in Physics, Primarschule Elsau, Switzerland, (24.01.2013).

#### 20.2.6 Miscellaneous

##### Article

- *Symmetric Jacobian for local Lyapunov exponents and Lyapunov stability revisited*  
F. Waldner and R. Klages, *Chaos, Solitons & Fractals* **45** (2012) 325.

### Outreach

- S. Roth and D. Leuenberger: *Zukünftige Produktion der HOPPE Holding AG: Werkzeuglose Bearbeitung mit Lasern*  
Invited Consulting Seminar, HPO AG, Hotel Zürichberg, 24.07.12
- Matthias Hengsberger: *Der Laserzoo - ein Streifzug durch die Lasertechnologie*  
Supervision of a Maturarbeit (Hagar Allaham, teacher: Thomas Camenzind), Kantonsschule Zürich Nord, Zürich-Oerlikon, July until October 2012