

19 Publications

19.1 Elementary particles and their interactions

19.1.1 Dark Matter

Articles in press

- **Search for WIMPs in liquid argon**
C. Amsler, Proceedings of the WIN \tilde{O} 11 Conference, Cape Town (2011), arXiv.org/abs/1105.4524.
- **Study of nuclear recoils in liquid argon with monoenergetic neutrons**
C. Regenfus, Y. Allkofer, C. Amsler, W. Creus, A. Ferella, J. Rochet, M. Walter, Journal of Physics: Conference Series, arXiv:1203.0849v1

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Lecture

- C. Regenfus: Study of nuclear recoils in liquid argon
12th Int. Conf. on Topics in Astroparticle and Underground Physics (TAUP 2011), Munich, Germany, 8 September 2011.

19.1.2 ATHENA, AEGIS

Articles

- **Towards the production of an ultra cold antihydrogen beam with the AEGIS apparatus**
J. W. Storey, Hyperfine Interact, DOI 10.1007/s10751-011-0401-x.
- **The AEGIS experiment at CERN, measuring the free fall of antihydrogen**
A. Kellerbauer *et al.* (AEGIS Collaboration), Hyperfine Interact, DOI 10.1007/s10751-012-0583-x.
- **Off-axial plasma displacement suitable for antihydrogen production in AEGIS experiment**
C. Canali *et al.* (AEGIS Collaboration), Eur. Phys. J. **D 65** (2011) 499.

Lectures

- J. Storey: Towards the production of an ultra cold antihydrogen beam with the AEGIS apparatus
10th international conference on Low Energy Antiproton Physics (LEAP 11), Vancouver, Canada, 29 April 2011.
- J. Storey: AEGIS : Measuring the fall of antihydrogen (with a detour through antihydrogen physics
Laboratoire Leprince-Ringuet, Palaiseau, France, 16 May 2011.

19.1.3 CDMS

Articles

- **Combined Limits on WIMPs from the CDMS and EDELWEISS Experiments**
Z. Ahmed *et al.* (CDMS, EDELWEISS Collaborations), Phys. Rev. D 84, 011102(R) (2011).

Lectures

- S. Arrenberg: Search for Inelastic Dark Matter with the CDMS experiment
SPS Meeting 2011, Lausanne, June 16th, 2011.

PhD thesis

- **Searching for Dark Matter with the Cryogenic Dark Matter Search Experiment**
S. Arrenberg, PhD Thesis, Physik-Institut, Universität Zürich, 2011.

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19.1.4 GERDA

Articles

- **Production and characterization of a custom-made ^{228}Th source with reduced neutron source strength for the Borexino experiment**
Maneschg, L. Baudis, R. Dressler, K. Eberhardt, R. Eichler, H. Keller, R. Lackner, B. Praast, R. Santorelli, J. Schreiner, M. Tarka, B. Wiegel, A. Zimbal, Nucl. Instr. and Meth. A 54372, (2011).

Lecture

- F. Froberg: The GERDA Experiment - A Search for Neutrinoless Double Beta Decay
TeVPA 2011, Stockholm, Sweden, August 5th, 2011.

19.1.5 XENON

Articles

- **Limits on the release of Rb isotopes from a zeolite based 83m-Kr calibration source for the XENON project**
V. Hannen, E. Aprile, F. Arneodo, L. Baudis, M. Beck, K. Bokeloh, A.D. Ferella, K. Giboni, R.F. Lang, O. Lebeda, H.-W. Ortjohann, M. Schumann, A. Spalek, D. Venos, C. Weinheimer, JINST 6 P10013 (2011).
- **The XENON100 Dark Matter Experiment**
E. Aprile *et al.* (XENON100 Collaboration), Astropart.Phys. 35 (2012) 573-590.

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- **Implications on Inelastic Dark Matter from 100 Live Days of XENON100 Data**
E. Aprile *et al.* (XENON100 Collaboration), Phys. Rev. D 84, 061101 (2011).
- **Search for light dark matter in XENON10 data**
J. Angle *et al.* (XENON10 Collaboration), Phys. Rev. Lett. 107, 051301 (2011).
- **Dark Matter Results from 100 Live Days of XENON100 Data**
E. Aprile *et al.* (XENON100 Collaboration), Phys. Rev. Lett. 107, 131302 (2011).
- **Material screening and selection for XENON100**
E. Aprile *et al.* (XENON100 Collaboration), Astropart. Phys. 35:43-49, 2011.
- **Characterization of the Quartz Photon Intensifying Detector (QUPID) for use in Noble Liquid Detectors**
A. Teymourian, D. Aharoni, L. Baudis, P. Beltrame, E. Brown, D. Cline, A.D. Ferella, A. Fukasawa, C.W. Lam, T. Lim, K. Lung, Y. Meng, S. Muramatsu, E. Pantic, M. Suyama, H. Wang, K. Arisaka, Nucl. Instr. and Meth. A 654 (2011), 184-195.
- **Gator: a low-background counting facility at the Gran Sasso Underground Laboratory**
L. Baudis, A.D. Ferella, A. Askin, J. Angle, E. Aprile, T. Bruch, A.Kish, M. Laubenstein, A. Manalaysay, T. Marrodan Undagoitia, M. Schumann, JINST 6 P08010, 2011.
- **Likelihood Approach to the First Dark Matter Results from XENON100**
E. Aprile *et al.* (XENON100 Collaboration), Phys. Rev. D 84, 052003 (2011).

Lectures

- L. Baudis: Direct detection of particle dark matter: where do we stand, where are we going?
Physics Colloquium Oxford University, January 27, 2012.
- L. Baudis: Dark matter: new results from direct detection
Physics Colloquium Bethe Forum, Bonn University, November 19, 2011.
- L. Baudis: Direct searches for dark matter in the Milky Way
TU Darmstadt, November 4, 2011.
- L. Baudis: Dark matter: new results from direct detection
PANIC, MIT, July 25, 2011.
- L. Baudis: Dark Matter: New Results from Direct Detection
Origin of Mass 2011, CP3-Origins, Ondense, May 13, 2011.
- L. Baudis: Recent results on direct WIMP searches: the XENON100 experiment
University of California, Irvine, May 4, 2011.
- L. Baudis: XENON100: new results
APS meeting Anaheim, May 2, 2011.
- L. Baudis: Dark matter: new results from direct detection
IceCube Inauguration Workshop, University of Wisconsin, Madison, April 29, 2011.
- L. Baudis: Recent results on direct WIMP searches: the XENON100 experiment
University of Chicago, April 27, 2011.

- M. Schumann: Direct Dark Matter Search with Noble Liquids
Rencontres de Moriond 2012, Cosmology Session, La Thuile, Italy, March 14th, 2012.
- M. Schumann: XENON
Bethe Forum 2011, Bonn, Germany, November 15th, 2011.
- A. Manalaysay: Measurements of the low-energy response of liquid xenon
TAUP 2011, Munich, Germany, September 8th, 2011.
- M. Schumann: XENON and DARWIN
CHIPP Meeting 2011, Leysin, Switzerland, September 1st, 2011.
- M. Schumann: Results of XENON100
TeVPA 2011, Stockholm, Sweden, August 3rd, 2011.
- T. Marrodan Undagoitia: Direct Dark Mater Detection and the XENON100 experiment
MPI, Heidelberg, August 1st, 2011.
- T. Marrodan Undagoitia: Mini-review Direct Dark Mater Detection and recent XENON100 results
EPS-HEP 2011, Grenoble, France, July 21st, 2011.
- A. Manalaysay: Probing light WIMPs with liquid xenon
7th PATRAS workshop on axions, WIMPs and WISPs, Mykonos, June 30th, 2011.
- M. Schumann: New Results from the XENON100 Dark Matter Experiment
SPS Meeting 2011, Lausanne, June 18th, 2011
- A. Behrens: Poster: Tests of PMTs for Future Dark Matter Detectors
SPS Meeting 2011, Lausanne, June 16th - 18th, 2011.
- M. Schumann: New Results from the XENON100 Dark Matter Experiment
Physikalisches Institut Universität Heidelberg, June 6th, 2011.
- T. Marrodan Undagoitia: The XENON100 experiment: results from 100d data
Bonn, May 16th, 2011.
- A. Kish: Cosmogenics backgrounds in the XENON100 experiment
CAB workshop by DUSEL, Berkeley LBNL, April 15th, 2011.

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PhD thesis

- **Dark Matter Search with the XENON100 Experiment**
A. Kish, PhD Thesis, Physik-Institut, Universität Zürich, 2011

Master thesis

- **Kalibrierung von Flüssig-Xenon-Detektoren zur Suche nach dunkler Materie im Universum**
C. Geis, Physik-Institut, Universität Zürich, 2011.

PUBLICATIONS

19.1.6 DARWIN

Lectures

- L. Baudis: DARWIN: dark matter WIMP search with noble liquids
DM 2012, Marina del Rey, February 24, 2012. Physics Colloquium TU Darmstadt, November 4, 2011.
- L. Baudis: DARWIN: dark matter WIMP search with noble liquids
TAUP, Munich, September 8, 2011.
- M. Schumann: DARWIN
7th PATRAS workshop on axions, WIMPs and WISPs, Mykonos, July 1st, 2011.

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19.1.7 CTA

Articles

- **Design concepts for the Cherenkov Telescope Array CTA: An advanced facility for ground-based high-energy gamma-ray astronomy**
M. Actis *et al.* (CTA Collaboration), *Exper.Astron.* 32 (2011) 193-316.
- **Solid light concentrators for small-sized photosensores used in Cherenkov telescopes**
B. Huber *et al.*, *Proc. 32nd ICRC*, Beijing, China, 2011.

19.1.8 DIRAC

Articles

- **Determination of $\pi\pi$ scattering lengths from measurement of the $\pi\pi$ atom lifetime**
B. Adeva *et al.* (DIRAC Collaboration), *Phys. Lett. B* 704 (2011) 24.

19.1.9 H1

Articles

- **Measurement of the Azimuthal Correlation between the most Forward Jet and the Scattered Positron in Deep-Inelastic Scattering at HERA**
H1 Collaboration, F. D. Aaron *et al.*, *Eur. Phys. J. C* 72 (2012) 1910.
- **Search for lepton flavour violation at HERA**
H1 Collaboration, F. D. Aaron *et al.*, *Phys. Lett. B* 701 (2011) 10.
- **Measurement of Photon Production in the Very Forward Direction in Deep-Inelastic Scattering at HERA**
H1 Collaboration, F. D. Aaron *et al.*, *Eur. Phys. J. C* 71 (2011) 1771.

- **Measurement of $D^{*\pm}$ Meson Production and Determination of $F_2^{c\bar{c}}$ at low Q^2 in Deep-Inelastic Scattering at HERA**
H1 Collaboration, F. D. Aaron *et al.*, Eur. Phys. J. C **71** (2011) 1769.
- **Measurement of the Inclusive $e^\pm p$ Scattering Cross Section at High Inelasticity y and of the Structure Function F_L**
H1 Collaboration, F. D. Aaron *et al.*, Eur. Phys. J. C **71** (2011) 1579.
- **Search for contact interactions in $e^\pm p$ collisions at HERA**
H1 Collaboration, F. D. Aaron *et al.*, Phys. Lett. B **705** (2011) 52.
- **Measurement of the diffractive longitudinal structure function F_L^D at HERA**
H1 Collaboration, F. D. Aaron *et al.*, Eur. Phys. J. C **71** (2011) 1836.
- **Search for first generation leptoquarks in $e^\pm p$ collisions at HERA**
H1 Collaboration, F. D. Aaron *et al.*, Phys. Lett. B **704** (2011) 388.

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Articles in press

- **Inclusive Measurement of Diffractive Deep-Inelastic Scattering at HERA**
H1 Collaboration, F. D. Aaron *et al.*, Eur. Phys. J. C, arXiv:1203.4495 [hep-ex].
- **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, arXiv:1111.0584 [hep-ex].

19.1.10 LHCb

Articles

- **Measurement of b-hadron masses**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **708** (2012) 241.
- **Observation of $B_s \rightarrow J/\psi f_2'(1525)$ in $J/\psi K^+ K^-$ final states**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **151801** (2012).
- **Measurement of the $B_s^0 - \bar{B}_s^0$ oscillation frequency Δm_s in $B_s^0 \rightarrow D_s^- (3)\pi$ decays**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **709** (2012) 177.
- **Measurement of the CP-violating phase ϕ_s in the decay $B_s \rightarrow J/\psi \phi$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 101803.
- **Measurement of the CP violating phase ϕ_s in $\bar{B}_s^0 \rightarrow J/\psi f_0(980)$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **707** (2012) 49.
- **Search for the rare decays $B_s \rightarrow \mu^+ \mu^-$ and $B^0 \rightarrow \mu^+ \mu^-$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **708** (2012) 55.
- **Evidence for CP violation in time-integrated $D^0 \rightarrow h^- h^+$ decay rates**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **108** (2012) 111602.

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- **First observation of the decay $B_s^0 \rightarrow K^{*0} \bar{K}^{*0}$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **709** (2012) 50.
- **Measurement of b hadron production fractions in 7 TeV pp collisions**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **85** (2012) 032008.
- **Measurement of the effective $B_s^0 \rightarrow K^+ K^-$ lifetime**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **707** (2012) 349.
- **Search for CP violation in $D^+ \rightarrow K^- K^+ \pi^+$ decays**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. D **84** (2011) 112008.
- **First observation of the decay $\bar{B}_s^0 \rightarrow D^0 K^{*0}$ and a measurement of the ratio of branching fractions $\mathcal{B}(\bar{B}_s^0 \rightarrow D^0 K^{*0})/\mathcal{B}(\bar{B}^0 \rightarrow D^0 \rho^0)$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **706** (2011) 32.
- **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/ψ pair production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **707** (2012) 52.
- **Measurement of the inclusive ϕ cross-section in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **703** (2011) 267.
- **Measurement of V^0 production ratios in pp collisions at $\sqrt{s} = 0.9$ and 7 TeV**
LHCb-Collaboration, R. Aaij *et al.*, JHEP **1108** (2011) 034.
- **Determination of f_s/f_d for 7 TeV pp collisions and a measurement of the branching fraction of the decay $B_d \rightarrow D^- K^+$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Rev. Lett. **107** (2011) 211801.
- **Search for the rare decays $B_s \rightarrow \mu \mu$ and $B_d \rightarrow \mu \mu$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B **699** (2011) 330.
- **Measurement of J/ψ production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C **71** (2011) 1645.

Articles in press

- **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, arXiv:1204.2813 [hep-ex]
- **Inclusive W and Z production in the forward region at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, JHEP, arXiv:1204.1620 [hep-ex]

- **Measurement of the ratio of prompt χ_c to J/ψ production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Journal of High Energy Physics, arXiv:1204.1462
- **Measurement of $\psi(2S)$ meson production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. Jour. C, arXiv:1204.1258 [hep-ex]
- **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, arXiv:1204.1237 [hep-ex]
- **First observation of the decay B_c^+ to $J/\psi \pi^+ \pi^- \pi^+$**
LHCb-Collaboration, R. Aaij *et al.*, Physics Review Letters, arXiv:1204.0079 [hep-ex]
- **Strong constraints on the rare decays $B_s \rightarrow \mu^+ \mu^-$ and $B^0 \rightarrow \mu^+ \mu^-$**
LHCb-Collaboration, R. Aaij *et al.*, PRL, arXiv:1203.4493 [hep-ex]
- **Observation of CP violation in B^+ to DK^+ decays**
LHCb-Collaboration, R. Aaij *et al.*, Physics Letters B, arXiv:1203.3662 [hep-ex]
- **Differential branching fraction and angular analysis of the decay $B^0 \rightarrow K^{*0} \pi^+$**
LHCb-Collaboration, R. Aaij *et al.*, PRL, arXiv:1112.3515v2 [hep-ex]
- **Measurements of the branching fractions and CP asymmetries of B^+ to $J/\psi \pi^+$ and B^+ to $\psi(2S) \pi^+$ decays**
LHCb-Collaboration, R. Aaij *et al.*, Phys Rev X, arXiv:1203.3592 [hep-ex]
- **Measurement of Υ production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, EPJC, arXiv:1202.6579
- **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.*, Physical Review D, arXiv:1202.6267 [hep-ex]
- **Search for the X(4140) state in B^+ to $J/\psi \phi K^+$ decays**
LHCb-Collaboration, R. Aaij *et al.*, Physical Review D Rapid Communications, arXiv:1202.5087 [hep-ex]
- **Opposite-side flavour tagging of B mesons at the LHCb experiment**
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C, arXiv:1202.4979 [hep-ex]
- **Measurement of the B^\pm production cross-section in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, JHEP, arXiv:1202.4812 [hep-ex]
- **Determination of the sign of the decay width difference in the B_s system**
LHCb-Collaboration, R. Aaij *et al.*, Physical Review Letters, arXiv:1202.4717 [hep-ex]
- **Measurement of the cross-section ratio $\sigma(\chi_{c2}) / \sigma(\chi_{c1})$ for prompt χ_c production at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. B, arXiv:1202.1080 [hep-ex]
- **Searches for Majorana neutrinos in B^- decays**
LHCb-Collaboration, R. Aaij *et al.*, Physics Review D, arXiv:1201.5600 [hep-ex]
- **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.*, Physical Review Letters, arXiv:1201.4402 [hep-ex]
- **Observation of X(3872) production in pp collisions at $\sqrt{s} = 7$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Eur. Phys. J. C, arXiv:1112.5310 [hep-ex]

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- **Measurement of charged particle multiplicities in pp collisions at $\sqrt{s} = 7$ TeV in the forward region**
LHCb-Collaboration, R. Aaij *et al.*, EPJ, arXiv:1112.4592 [hep-ex]
- **Measurement of mixing and CP violation parameters in two-body charm decays**
LHCb-Collaboration, R. Aaij *et al.*, JHEP, arXiv:1112.4698 [hep-ex]

Notes and reports

- **Measurement of the track finding efficiency**
A. Jaeger *et al.*, CERN-LHCb-PUB-2011-025.

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- **Inclusive Drell-Yan production in the forward region at $\sqrt{s} = 7$ TeV**
LHCb collaboration, LHCb-CONF-2012-013
- **Measurement of the relative Z plus jet cross section**
W. Barter and A. Bursche, LHCb-ANA-2012-006
- **Differential branching fraction and angular analysis of the $B^0 \rightarrow K^{*0} \mu^+ \mu^-$ decay**
LHCb collaboration, LHCb-CONF-2012-008
- **Analysis of $B^0 \rightarrow K^{*0} \mu^+ \mu^-$ at LHCb**
LHCb collaboration, LHCb-CONF-2011-038
- **Search for the rare decays $B_s^0 \rightarrow \mu^+ \mu^-$ with 300 pb^{-1} at LHCb**
LHCb collaboration, LHCb-CONF-2011-037
- **Search for the rare decay $B_s^0 \rightarrow \mu^+ \mu^-$ at the LHC with the CMS and LHCb experiments Combination of LHC results of the search for $B_s^0 \rightarrow \mu^+ \mu^-$ decays**
CMS and LHCb Collaborations, LHCb-CONF-2011-047
- **Updated measurements of W and Z production at $\sqrt{s} = 7$ TeV with the LHCb experiment**
LHCb collaboration, LHCb-CONF-2011-039

Conference contributions

- Michel De Cian: Rare electroweak penguin decays at LHCb
LHCb-Theory Workshop: Implications of LHCb measurements and future prospects, CERN, Switzerland, 16 - 18 Apr 2012.
- Katharina Müller: Electroweak results at LHCb
SM@LHC, Copenhagen, Denmark, 10th-13th April 2012.
- 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 Apr 2011.
- Albert Bursche: Jet reconstruction with LHCb
XX International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2012), Bonn, Virginia, Germany, 11 - 15 Apr 2011.

- Albert Bursche: Elektroschwache Bosonen im LHCb Experiment
Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Göttingen, Deutschland, 27.2. - 2.3. 2012.
- Ulrich Straumann: The LHCb experiment
50. International Winter Meeting on Nuclear Physics, Bormio (Italy), 23-27 January 2012.
- Ulrich Straumann: The LHCb Experiment: Operation, performance and results
ETH Kolloquium, Zurich, 23. November 2011.
- Nicola Serra: Physics at LHCb
Amsterdam Particle Physics Symposium, Amsterdam, Netherlands, 30 Nov-2 Dec 2011.
- Nicola Serra: LHCb Physics
CHIPP plenary meeting, Leysin, 1st September 2011
- Nicola Serra: Flavour physics results
EPS Summary Workshop CERN, 2nd August 2011
- Jonathan Anderson: W and Z production in the forward region with the LHCb experiment
Meeting of the Division of Particles and Fields of the American Physical Society, Providence, Rhode Island, 9-13 Aug 2011
- Olaf Steinkamp: LHCb physics, performance, prospects
7th Patras Workshop on Axions, WIMPs and WISPs, Mykonos, Greece, 26 Jun-1 Jul 2011.
- Jonathan Anderson: W and Z production in the forward region at LHCb
2nd Workshop on Standard Model Benchmarks at Hadron Colliders, Zeuthen, Germany, 15-17 June 2011.
- Nicola Chiapolini: An inquiry into the nature and distribution of proton partons
Joint annual meeting of the OePG/SPS, Lausanne, 15.-17. June 2011
- Albert Bursche: LHCb also likes the flavour of electroweak bosons (Poster)
Joint annual meeting of the OePG/SPS, Lausanne, 15.-17. June 2011
- Michel De Cian: Peak performance at LHCb
Joint annual meeting of the SPS, OePG/SPS, Lausanne, 15.-17. June 2011
- Christophe Salzmann: Searching for new physics in $B \rightarrow K^* \mu\mu$ at LHCb
Phenomenology 2011 Symposium: The Curtain Rises...for Particle Discoveries, Madison, Wisconsin, 9-11 May 2011

19.1.11 CMS

Articles

- **A new CMS pixel detector for the LHC luminosity upgrade**
C. Favaro, Nucl. Instr. and Meth. **A 658** (2011) 41.
- **Performance of the CMS pixel detector from the first LHC collisions**
S. de Visscher, Nuclear Physics B - Proc. Suppl. **215** (2011) 101.

PUBLICATIONS

- **Measurement of exclusive b -hadron production at 7 TeV with the CMS experiment**
E. Aguiló, PoS (BEAUTY 2011) 003.
- **The Alignment of the CMS Silicon Tracker**
E. Aguiló, Nuclear Physics B - Proc. Suppl. **215** (2011) 104.
- **CMS Detector Performance**
H. Snoek, PoS (BEAUTY 2011) 048.
- **Measurement of tau identification efficiency at CMS**
M. Verzetti, PoS (EPS-HEP2011) 417.
- **Performance of track and vertex reconstruction and b -tagging studies with CMS in pp collisions at $\sqrt{s} = 7$ TeV**
A. Schmidt, PoS (Kruger 2010) 032.

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From the 85 articles signed by the full CMS Collaboration Zürich contributed directly to:

- **Measurement of the B^+ Production Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 112001.
- **Search for Neutral MSSM Higgs Bosons Decaying to Tau Pairs in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 231801.
- **Measurement of the B^0 Production Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 252001.
- **Search for $B_s^0 \rightarrow \mu^+ \mu^-$ and $B^0 \rightarrow \mu^+ \mu^-$ decays in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **107** (2011) 191802.
- **Measurement of the B_s^0 Production Cross Section with $B_s^0 \rightarrow J/\psi \phi$ Decays in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. **D 84** (2011) 052008.
- **Search for Supersymmetry in pp Collisions at 7 TeV in Events with Jets and Missing Transverse Energy**
CMS Collaboration, Phys. Lett. **B 698** (2011) 196.
- **Inclusive b -hadron production cross section with muons in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. **03** (2011) 090.
- **Measurement of $B\bar{B}$ angular correlations based on secondary vertex reconstruction at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. **03** (2011) 136.
- **J/ψ and $\psi(2S)$ production in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. **02** (2012) 011.
- **Prompt and non-prompt J/ψ production in pp collisions at $\sqrt{s} = 7$ TeV**
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- **Inclusive b-jet production in pp collisions at $\sqrt{s} = 7$ TeV**
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- **The $\eta(1405)$, $\eta(1475)$, $f_1(1420)$, and $f_1(1510)$**
C. Amsler and A. Masoni
- **Quark Model**
C. Amsler, T. DeGrand and B. Krusche

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- L. Baudis: The Universe in 45 Minutes
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19.2 Condensed matter

19.2.1 Superconductivity and Magnetism

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- **Coexistence of superconductivity and magnetism in FeSe_{1-x} under pressure**
M. Bendele, A. Ichsanow, Yu. Pashkevich, L. Keller, Th. Strässle, A. Gusev, E. Pomjakushina, K. Conder, R. Khasanov, and H. Keller,
Phys. Rev. B **85**, 064517-1-11 (2012).
- **Absolute value and temperature dependence of the magnetic penetration depth in $\text{Ba}(\text{Co}_{0.074}\text{Fe}_{0.926})_2\text{As}_2$**
O. Ofer, J. C. Baglo, M. D. Hossain, R. F. Kiefl, W. N. Hardy, A. Thaler, H. Kim, M. A. Tanatar, P. C. Canfield, R. Prozorov, G. M. Luke, E. Morenzoni, H. Saadaoui, A. Suter, T. Prokscha, B. M. Wojek, and Z. Salman,
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- **Muon spin rotation study of the intercalated graphite superconductor CaC_6 at low temperatures**
F. Murányi, M. Bendele, R. Khasanov, Z. Guguchia, A. Shengelaya, C. Baines, and H. Keller,
J. Supercond. Nov. Magn. **25**, 159-163 (2012).

PhD theses

- **Superconductivity and magnetism in cuprate single crystals and thin-film heterostructures**
Bastian Manuel Wojek, PhD Thesis, Physik-Institut, Universität Zürich, 2011
- **The superconducting and magnetic properties of the iron-chalcogenides**
Markus Bendele, PhD Thesis, Physik-Institut, Universität Zürich, 2011

Master theses

- **Si/SiO-Braggspiegel für Scheiben Laser (Vertical External Cavity Surface Emitting Laser)**
Fabian Hobrecker, Master Thesis, Physik-Institut, Universität Zürich, 2011
- **PbTe quantum well vertical external cavity surface emitting laser**
Rosa Maria Rodriguez, Master Thesis, Physik-Institut, Universität Zürich, 2011

Articles in press

- **Isotope and multiband effects in layered superconductors**
A. Bussmann-Holder and H. Keller,
J. Phys.: Condens. Matter.
- **Spin density wave induced disordering of the vortex lattice in superconducting $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$**
J. Chang, J. S. White, M. Laver, C. J. Howell, S. P. Brown, A. T. Holmes, L. Maechler, S. Strässle, R. Gilardi, S. Gerber, T. Kurosawa, N. Momono, M. Oda, M. Ido, O. J. Lipscombe, S. M. Hayden, C. D. Dewhurst, R. Vavrin, J. Gavilano, J. Kohlbrecher, E. M. Forgan, and J. Mesot,
Phys. Rev. B.
- **Tuning the structural instability of 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,
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Conference reports

- **Intrinsic and structural iron isotope effect on the superconducting transition temperature of FeSe_{1-x}**
M. Bendele, R. Khasanov, K. Conder, E. Pomjakushina, V. Pomjakushin, A. Bussmann-Holder, and H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Magnetic torque study of the temperature dependent anisotropy in $\text{YBa}_2\text{Cu}_3\text{O}_7$**
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, A. Schilling, and H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Muon-spin rotation measurements of the magnetic penetration depth in the Fe-based superconductors $\text{Ba}_{1-x}\text{Rb}_x\text{Fe}_2\text{As}_2$**
Z. Guguchia, Z. Shermadini, A. Amato, A. Maisuradze, A. Shengelaya, Z. Bukowski, H. Luetkens, R. Khasanov, J. Karpinski, and H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Strong coupling between the Eu^{2+} spins and the Fe_2As_2 layers in $\text{EuFe}_{1.9}\text{Co}_{0.1}\text{As}_2$ as revealed by NMR**
Z. Guguchia, J. Roos, A. Shengelaya, S. Katrych, Z. Bukowski, S. Weyeneth, F. Murányi, S. Strässle, A. Maisuradze, J. Karpinski, and H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **μSR investigation of pressure effect on superfluid density in $\text{YBa}_2\text{Cu}_3\text{O}_x$**
A. Maisuradze, A. Shengelaya, A. Amato, K. Conder, E. Pomjakushina, and H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Low-energy μSR investigations of photo induced effects on the magnetic state of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at low doping ($x < 0.02$)**
E. Stilp, A. Suter, T. Prokscha, H. Keller, E. Morenzoni, Z. Salman, E. Pomjakushina, K. Conder, A. Gozar, I. Bozović, and G. Logvenov,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Magnetic torque study of the canted antiferromagnetic state of $\text{EuFe}_{2-x}\text{Co}_x\text{As}_2$ single crystals**
S. Weyeneth, S. Bosma, Z. Guguchia, R. Puzniak, A. Shengelaya, Z. Bukowski, J. Karpinski, and

- H. Keller,
Annual meeting of the Swiss Physical Society, Lausanne, June 15-17, 2011.
- **Iron isotope effects in FeSe_{1-x}**
M. Bendele, R. Khasanov, K. Conder, E. Pomjakushina, V. Pomjakushin, A. Bussmann-Holder, and H. Keller,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **Temperature dependent anisotropy in superconducting single-crystal YBa₂Cu₃O₇ studied by torque magnetometry**
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, A. Schilling, and H. Keller,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **Muon-spin rotation measurements of the magnetic penetration depth in the Fe-based superconductors Ba_{1-x}Rb_xFe₂As₂**
Z. Guguchia, Z. Shermadini, A. Amato, A. Maisuradze, A. Shengelaya, Z. Bukowski, H. Luetkens, R. Khasanov, J. Karpinski, and H. Keller,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **NMR investigation of the coupling between the Eu²⁺ spins and the Fe₂As₂ layers in EuFe_{1.9}Co_{0.1}As₂**
Z. Guguchia, J. Roos, A. Shengelaya, S. Katrych, Z. Bukowski, S. Weyeneth, F. Murányi, S. Strässle, A. Maisuradze, J. Karpinski, and H. Keller,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **Photo persistent effects of La_{2-x}Sr_xCuO₄ at low doping ($x < 0.02$) by Low-energy μ SR**
E. Stilp, A. Suter, T. Prokscha, H. Keller, E. Morenzoni, Z. Salman, E. Pomjakushina, K. Conder, A. Gozar, I. Bozović, and G. Logvenov,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **Generics of the diamagnetism, Nernst signal, and finite size effects in superconductors above the transition temperature**
S. Weyeneth and T. Schneider,
Swiss workshop on Materials with Novel Electronic Properties, Les Diablerets, June 29 - July 1, 2011.
 - **Magnetic-field tuned anisotropy in superconducting Rb_xFe_{2-y}Se₂**
S. Bosma, R. Puzniak, A. Krzton-Maziopa, M. Bendele, E. Pomjakushina, K. Conder, H. Keller, and S. Weyeneth,
E-MRS Fall Meeting, Warsaw, Poland, September 19 - 23, 2011.
 - **Strong coupling between the Eu²⁺ spins and the Fe₂As₂ layers in EuFe_{1.9}Co_{0.1}As₂ as revealed by NMR**
Z. Guguchia, J. Roos, A. Shengelaya, S. Katrych, Z. Bukowski, S. Weyeneth, F. Murányi, S. Strässle, A. Maisuradze, J. Karpinski, and H. Keller,
E-MRS Fall Meeting, Warsaw, Poland, September 19 - 23, 2011.
 - **Muon-spin rotation measurements of the magnetic penetration depth in the Fe-based superconductors Ba_{1-x}Rb_xFe₂As₂**
Z. Guguchia, Z. Shermadini, A. Amato, A. Maisuradze, A. Shengelaya, Z. Bukowski, H. Luetkens, R. Khasanov, J. Karpinski, and H. Keller,
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- **Diamagnetism, Nernst signal, and finite size effects in superconductors above the transition temperature**
S. Weyeneth and T. Schneider,
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- **μ SR investigation of pressure effect on superfluid density in $\text{YBa}_2\text{Cu}_3\text{O}_x$**
A. Maisuradze, A. Shengelaya, A. Amato, E. Pomjakushina, and H. Keller,
Annual meeting of the American Physical Society, Boston, USA, February 27 - March 2, 2012.

Invited lectures

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- M. Bendele: Pressure induced static magnetic order in superconducting FeSe_{1-x}
12th International Conference on Muon Spin Rotation, Relaxation and Resonance, Cancun, Mexico, May 16-20, 2011.
- H. Keller: Probing fundamental properties of high-temperature superconductors with positive muons
International Conference Resonances in Condensed Matter Devoted to the Century of Prof. S. A. Altshuler, Kazan Federal University, Kazan, Russia, June 21-25, 2011.
- H. Keller: From cuprate to iron-based superconductors - some key signatures of high-temperature superconductivity
7th International Conference on Stripes and High T_c Superconductivity STRIPES 11, Quantum Phenomena in Complex Matter & Quantum Physics of Living Matter, University of Rome "La Sapienza", Rome, Italy, July 10-16, 2011.
- H. Keller: Absence of orbital currents in superconducting $\text{YBa}_2\text{Cu}_4\text{O}_8$ using a Zeeman-perturbed nuclear quadrupole resonance technique
26th International Conference on Low Temperature Physics, Hosted by the Institute of Physics Chinese Academy of Sciences, Beijing, China, August 10-17, 2011.
- H. Keller: From cuprate to iron-based superconductors - some key signatures of high-temperature superconductivity
Leibniz Institute for Solid State and Materials Research Dresden, IFW-Dresden, Dresden, Germany, August 29, 2011.
- H. Keller: Isotope effects in layered high-temperature superconductors
Université de Fribourg, Department of Physics, Fribourg, Switzerland, October 25, 2011.

19.2.2 Phase transitions and superconducting photon detectors

Articles

- **Dynamic stability of organic conducting polymers and its replications in electrical conduction and degradation mechanics**
E. F. C. Chimamkam, T. Schweizer, A. Schilling, J. M. F. Ferreira
Adv. Funct. Mat., 21 (2011) 2240.
- **Coexistence of Magnetism and Superconductivity in the Iron-Based Compound $\text{Cs}_{0.8}(\text{FeSe}_{0.98})_2$**
Z. Shermadini, A. Krzton-Maziopa, M. Bendele, R. Khasanov, H. Luetkens, K. Conder,

- E. Pomjakushina, S. Weyeneth, V. Pomjakushin, O. Bossen, and A. Amato
Phys. Rev. Lett., 106 (2011) 117602.
- **Magnetic torque study of the temperature-dependent anisotropy parameter in overdoped superconducting single-crystal $\text{YBa}_2\text{Cu}_3\text{O}_7$**
S. Bosma, S. Weyeneth, R. Puzniak, A. Erb, A. Schilling and H. Keller
Phys. Rev. B, 84 (2011) 024514.
 - **Rapid one-step chemical synthesis of polyaniline-manganese ferritenanocomposites without external initiator and mechanical agitation**
E.F.C. Chimamkam, T. Schweizer, A. Schilling, and J.M.F. Ferreira
Nanotech, 1 (2011) 527.
 - **LC-Circuit Calorimetry**
O. Bossen and A. Schilling
Rev. Sci. Instrum., 82 (2011) 094901.
 - **Observation of a first-order phase transition deep within the vortex-solid region of $\text{YBa}_2\text{Cu}_3\text{O}_7$**
M. Reibelt, S. Weyeneth, A. Erb, A. Schilling
Supercond. Sci. Technol., 24 (2011) 105019.
 - **Tantalum nitride superconducting single-photon detectors with low cut-off energy**
A. Engel, A. Aeschbacher, K. Inderbitzin, A. Schilling, K. Il'in, M. Hofherr, M. Siegel, A. Semenov, H.-W. Hübers
Appl. Phys. Lett., 100 (2012) 062601.

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Articles in press

- **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.
- **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.
- **On Josephson effects in insulating spin systems**
A. Schilling, H. Grundmann
Annals of Physics.

Master theses

- **Superconducting Nanowire Single-Photon Detectors based on TaN Thin Films**
Adrian Aeschbacher
Master Thesis, Physik-Institut Universität Zürich, 2011.
- **Mie resonance spectroscopy of single levitated particle**
Yiea-Funk Te
Master Thesis, Physik-Institut Universität Zürich, 2012.

Contributed Conference Presentations

- A. Engel: Evaluation of Superconducting Nanowire Single-Photon Detectors as X-ray Detectors
SPG Jahrestagung, Lausanne, 15.6.2011.
- F. von Rohr: GeBi_4Te_7 : A Novel Topological Insulator (Poster)
Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, 29.6.-1.7.2011.
- A. Aeschbacher: Superconducting Nanowire Single-Photon Detectors based on TaN Thin Films (Poster)
Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, 29.6.-1.7.2011.
- A. Engel: Fluctuations in Current-biased Superconducting Nanowires
Superconductivity Centennial Conference, Den Haag (Netherlands), 22.9.2011.
- A. Engel: Detection of Soft X-Rays using Superconducting Nanowire Single-Photon Detectors
International Workshop on Nanowire Superconducting Single-Photon Detectors, Eindhoven (Netherlands), 23.9.2011.
- K. Inderbitzin: Ultrafast X-Ray Photon Detection in Thin- and Thick-Film SNSPDs (Poster)
International Workshop on Nanowire Superconducting Single-Photon Detectors, Eindhoven (Netherlands), 23.9.2011.

Invited Lectures

- F. von Rohr: Novel Materials for Superconductors and Topological Insulators
Solid State Physics Seminar at University of Zürich, 25.5.2011.
- A. Schilling: The early years of the cuprates - how to escape a research bubble
SPS Jahrestagung Lausanne, 16.06.2011.
- O. Bossen: Realization of a thermal LC-circuit
Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, 30.6.2011.
- A. Schilling: Josephson effects in insulating quantum spin systems?
LT 26 Beijing (China), 16.08.2011.

19.2.3 Surface Physics

Articles

- **Strongly enhanced electron-phonon coupling in the Rashba-split state of the Bi/Ag(111) surface alloy**
D. Guan, M. Bianchi, S. Bao, E. Perkins, F. Meier, J. H. Dil, J. Osterwalder, Ph. Hofmann,
Phys. Rev. B 83, 155451:1-6 (2011).
- **Time-resolved photoelectron spectroscopy to probe ultrafast charge transfer and electron dynamics in solid surface systems and at metal-molecule interfaces**

L. Castiglioni, M. Greif, D. Leuenberger, S. Roth, J. Osterwalder, M. Hengsberger, *Chimia* 65, 342-345 (2011).

- **Synthesis of graphene on rhodium from 3-pentanone**
S. Roth, J. Osterwalder, T. Greber, *Surf. Sci.* 605, L17-L19 (2011).
- **Tuning the spin texture in binary and ternary surface alloys on Ag(111)**
I. Gierz, F. Meier, J. H. Dil, K. Kern, C. R. Ast, *Phys. Rev. B* 83, 195122:1-7 (2011).
- **Energy distribution curves of ultrafast laser-induced field emission and their implications for electron dynamics**
H. Yanagisawa, M. Hengsberger, D. Leuenberger, M. Klöckner, C. Hafner, T. Greber, J. Osterwalder, *Phys. Rev. Lett.* 107, 087601:1-5 (2011).
- **Large tunable Rashba spin splitting of a two-dimensional electron gas in Bi₂Se₃**
P. D. C. King, R. C. Hatch, M. Bianchi, R. Ovsyannikov, C. Lupulescu, G. Landolt, B. Slomski, J. H. Dil, D. Guan, J. L. Mi, E. D. L. Rienks, J. Fink, A. Lindblad, S. Svensson, S. Bao, G. Balakrishnan, B. B. Iversen, J. Osterwalder, W. Eberhardt, F. Baumberger, Ph. Hofmann, *Phys. Rev. Lett.* 107, 096802:1-5 (2011).
- **Disentanglement of electron dynamics and space-charge effects in time-resolved photoemission from h-BN/Ni(111)**
D. Leuenberger, H. Yanagisawa, S. Roth, J. Osterwalder, M. Hengsberger, *Phys. Rev. B* 84, 125107:1-9 (2011).
- **Resonant photoelectron diffraction with circularly polarized light**
M. Morscher, F. Nolting, T. Brugger, T. Greber, *Phys. Rev. B* 84, 140406(R):1-4 (2011).
- **Manipulating the Rashba-type spin splitting and spin texture of Pb quantum well states**
B. Slomski, G. Landolt, F. Meier, L. Patthey, G. Bihlmayer, J. Osterwalder, J. H. Dil, *Phys. Rev. B* 85, 193406:1-6 (2011).
- **Atom-specific spin mapping and buried topological states in a homologous series of topological insulators**
S. V. Eremeev, G. Landolt, T. V. Menshchikova, B. Slomski, Y. M. Koroteev, Z. S. Aliev, M. B. Babanly, J. Henk, A. Ernst, L. Patthey, A. Eich, A. A. Khajetoorians, J. Hagemester, O. Pietzsch, J. Wiebe, R. Wiesendanger, P. M. Echenique, S. S. Tsirkin, I. R. Amiraslanov, J. H. Dil, E. V. Chulkov, *Nature Commun.* 3, 635:1-7 (2012).
- **Viewpoint: Can spin-polarized photoemission measure spin properties in condensed matter ?**
J. Osterwalder, *J. Phys.: Condens. Matter* 24, 171001:1-3 (2012).
- **Topical Review: Spin-orbit-induced photoelectron spin polarization in angle-resolved photoemission from both atomic and condensed matter targets**
U. Heinzmann, J. H. Dil, *J. Phys: Condens. Matter* 24, 173001:1-30 (2012).

Articles in press

- **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.*

PUBLICATIONS

- Attosecond transversal streaking to probe electron dynamics at surfaces

L. Castiglioni, D. Leuenberger, M. Greif, J. Osterwalder, and M. Hengsberger, in *Proceedings of the ATTO03 Conference*, Springer Proceedings in Physics Series, Springer.

Book chapter

- Photoelectron spectroscopy and diffraction

J. Osterwalder, in *Surface and Interface Science*, edited by Klaus Wandelt, Wiley-VCH, Weinheim 2012, pages 151-214.

PhD thesis

- Electron dynamics in low-dimensional surfaces studied by time-resolved photoelectron spectroscopy

Dominik Leuenberger, PhD Thesis, Physik-Institut, Universität Zürich, 2011.

Master thesis

- Spin-polarisierte Elektronenkanone

Colette Rosenberg, Master Thesis, Physik-Institut, Universität Zürich, 2012.

Contributed conference presentations

- Photoelectron diffraction on SnPc/Ag(111) (Poster)

M. Greif, Swiss Physical Society Meeting, Lausanne, 18.06.11.

- Controlling the Rashba-type spin splitting in Pb quantum well states

B. Slomski, Swiss Physical Society Meeting, Lausanne, 18.06.11.

- Spin structure of three-dimensional topological insulators

G. Landolt, Swiss Physical Society Meeting, Lausanne, 18.06.11.

- Spin structure manipulation in three-dimensional topological insulators

J. H. Dil, Conference on New Generation of strongly correlated electron systems, Santiago de Compostela, Spain, 07.07.11.

- Transversal attosecond streaking to probe electron dynamics at surfaces and interfaces (Poster)

Luca Castiglioni, ATTO3 Conference, Sapporo, Japan, 07.07.11.

- Time-resolved photoelectron diffraction (Poster)

M. Greif, FEMTO-10 Conference, Madrid, Spain, 12.07.11.

- Ultrafast electron transfer dynamics in photoemission from negative-electron-affinity layers (Poster)

M. Hengsberger, FEMTO-10 Conference, Madrid, Spain, 12.07.11.

- Spin structure of topological insulators in the limit of ultra-thin films

G. Landolt, Fall Meeting of the European Materials Research Society, Warsaw, Poland, 20.09.11.

- **Spin structure manipulation in three-dimensional topological insulators**
J. H. Dil, International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-2011), St. Petersburg, Russia, 07.10.11.
- **Wafer-scale epitaxial h-BN as a substrate for graphene growth: a progress report**
J. Osterwalder, Workshop on Graphene Synthesis and Characterization for Applications, Lake Windermere, U. K., 16.11.11.
- **Time-resolved photoelectron diffraction (Poster)**
M. Greif, NCCR MUST Assembly Meeting, Lenk, 11.01.12.
- **Transversal attosecond streaking to probe electron dynamics at surfaces and interfaces (Poster)**
L. Castiglioni, NCCR MUST Assembly Meeting, Lenk, 11.01.12.
- **Electron dynamics and coherent lattice excitations in the one-dimensional Bi(114) surface(Poster)**
D. Leuenberger, NCCR MUST Assembly Meeting, Lenk, 11.01.12.
- **Graphene on Ru(0001): the four hills in the 25-on-23 structure**
T. Greber, March Meeting of the American Physical Society, Boston, USA, 01.03.12.
- **Self-protecting topological states**
J. H. Dil, PSI-Workshop on Spectroscopy of Novel Materials, Beatenberg, 02.03.12.
- **Manipulating the Rashba-type spin splitting of Pb quantum well states through the substrate charge density**
B. Slomski, PSI-Workshop on Spectroscopy of Novel Materials, Beatenberg, 02.03.12.
- **Coexistence of Rashba-split surface and bulk states in a non-centrosymmetric system**
G. Landolt, PSI-Workshop on Spectroscopy of Novel Materials, Beatenberg, 02.03.12.
- **p- to n-type transition in the three-dimensional topological insulator $\text{Ge Bi}_{4-x}\text{Sb}_x\text{Te}_7$**
S. Muff, PSI-Workshop on Spectroscopy of Novel Materials, Beatenberg, 02.03.12.
- **Hopping and trapping of F4TCNQ molecules on the h-BN nanomesh**
H. Cun, March Meeting of the American Physical Society, Boston, USA, 01.03.12.
- **The four hills of graphene on Ru(0001) '25 on 23'**
T. Greber, Symposium on Surface Science (3S), St. Christoph, Austria, 13.03.12.
- **Self-protecting spin-polarized surface states in ternary topological insulators**
J. H. Dil, Symposium on Surface Science (3S), St. Christoph, Austria, 13.03.12.
- **Time-resolved phototelectron diffraction for measuring structural dynamics at surfaces**
M. Greif, International Conference on Ultrafast Structural Dynamics (ICUSD 2012), Berlin, Germany, 20.03.12.
- **Manipulating the Rashba-type spin splitting through the interface and substrate charge density**
B. Slomski, Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, Germany, 25.03.12.
- **Photoelectron diffraction on SnPc/Ag(111)**
M. Greif, Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Berlin, Germany, 26.03.12.

PUBLICATIONS

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- J. H. Dil: Spin-resolved ARPES on three-dimensional topological insulators
IFW-Seminar, Leibniz Institute for Solid State and Materials Research, Dresden, Germany, 04.04.11.
- T. Greber: Nanomesh und seine berühmte Schwester Graphene als Quantenschablonen
Physik-Kolloquium, Technische Universität Ilmenau, Germany, 03.05.11.
- J. H. Dil: Spin-resolved ARPES on three-dimensional topological insulators
NCCR MaNEP Topical Meeting on 'Topological Properties of Electronic Materials', Geneva, 06.05.11.
- J. Osterwalder: Spin matters at surfaces
ARPES Workshop, Diamond Light Source, Didcot, U.K., 08.06.11.
- J. H. Dil: Spin-resolved ARPES on systems with strong spin-orbit interaction
Quantum Many-Body Phenomena Seminar, Universität Würzburg, Germany, 26.05.11.
- T. Greber: Nanomesh and his famous sister graphene as nano-templates
International Workshop on Nanomaterials and Nanodevices, Institute of Physics, Chinese Academy of Sciences, Beijing, China, 02.07.11.
- T. Greber: How photons turn the electrons
International Workshop on Nanomaterials and Nanodevices, Xiantan, China, 04.07.11.
- D. Leuenberger: Disentanglement of electron dynamics and space-charge effects on h-BN/Ni(111)
Seminar, Institut für Angewandte Physik, Universität Bern, Bern, 07.07.11.
- J. H. Dil: Spin-resolved ARPES on systems with strong spin-orbit interaction
Condensed Matter Seminar, Princeton University, Princeton, NJ, USA, 28.07.11.
- T. Greber: Resonant photoelectron diffraction (RXPd)
International Conference on the Structure of Surfaces (ICSOS-10), Hong Kong, China, 02.08.11.
- J. H. Dil: Towards spin manipulation in three-dimensional topological insulators
European Conference on Surface Science (ECOSS-28), Wrocław, Poland, 30.08.11.
- J. H. Dil: Spin-resolved ARPES on three-dimensional topological insulators
Fall Meeting of the European Materials Research Society, Warsaw, Poland, 20.09.11.
- J. Osterwalder: Spin structures of surface states measured by spin-polarized ARPES
International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-2011), St. Petersburg, Russia, 07.10.11.
- J. H. Dil: Spin structure manipulation in three-dimensional topological insulators and thin films
PSI-IOP Workshop on Research at Large Scale Facilities, Institute of Physics, Chinese Academy of Sciences, Beijing, China, 20.10.11.
- J. H. Dil: Spin-resolved ARPES on thin films and three-dimensional topological insulators
X. Zhou Group Seminar, Institute of Physics, Chinese Academy of Sciences, Beijing, China, 24.10.11.
- T. Greber: Molecular trapping on boron nitride and carbon based honeycomb superstructures
US-Morocco Workshop on Nanomaterials and Renewable Energies, Al Akhawayn University, Ifrane, Morocco, 18.11.11.

- T. Greber: Boron nitride and graphene based honeycomb superstructures ... bottom-up perspectives for nanodevices
1st Euro-Mediterranean Conference on Materials and Renewable Energies (EMCMRE-1), Marrakech, Morocco, 24.11.11.
- M. Hengsberger: Time-resolved photoelectron spectroscopy from a one-dimensional metal: Bi(114)
Abteilungsseminar Physikalische Chemie, Fritz-Haber-Institut, Berlin, 19.12.11.
- T. Greber: The corrugation of graphene on ruthenium
Symposium on Surface and Nano Science (SSNS'12), Shizukuishi, Japan, 11.01.12.
- J. H. Dil: Spin-resolved ARPES on topological insulators and beyond
Condensed Matter Seminar, University of Geneva, Geneva, 18.01.12.
- D. Leuenberger: Time-resolved experiments on a vicinal Bi(114) surface
I. Matsuda Group Seminar, SPring-8, Japan, 06.02.12.
- J. Osterwalder: Photoemission studies of boron nitride, graphene, Rashba systems and topological insulators
Lecture, Graduate School of Materials Science, Nara Institute of Science and Technology, Nara, Japan, 29.02.12.
- J. Osterwalder: Exploring spin degrees of freedom at nonmagnetic surfaces
16th Hiroshima International Symposium on Synchrotron Radiation, Hiroshima, Japan, 02.03.12.
- J. Osterwalder: Exploring spin degrees of freedom at nonmagnetic surfaces
Seminar, Institute of Solid State Physics, University of Tokyo, Japan, 05.03.12.
- T. Greber: Boron nitride and graphene based honeycombs on transition metals
Seminar, Brookhaven National Laboratory, Brookhaven, NY, USA, 07.03.12.
- T. Greber: Hexagonal boron nitride and carbon on 4d transition metals: corrugated single-layer templates for nanosciences
Materials Group Seminar, PSI, Villigen, 26.03.12.

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Outreach Activities

- J. Osterwalder, S. Steiner, R. Gredig: Von Science Fiction zur Realität
2x90 min. and 3x30 min. modules taught at the TecDay and TecNight of the Kantonsschule Frauenfeld, 03.11.11.

19.2.4 Physics of Biological Systems

Articles

- **Novel Fourier-domain constraint for fast phase retrieval in coherent diffraction imaging**
T. Latychevskaia, J.-N. Longchamp, and H.-W. Fink, Optics Express 19(20), 19330-39 (2011).
- **Individual filamentous phage imaged by electron holography**
G.B. Stevens, M. Krüger, T. Latychevskaia, P. Lindner, A. Plückthun and H.-W. Fink, Eur. Biophys. J. (2011) 40:1197-1201.

PUBLICATIONS

Conference contributions

- Jean-Nicolas Longchamp: Coherent low-energy electron diffraction of single biomolecules (poster)
Microscopy Conference MC 2011, 28.08-02.09.2011, Kiel, Germany.
- Mirna Saliba: Microlens-assisted Fourier transform holography (poster)
Microscopy Conference MC 2011, 28.08-02.09.2011, Kiel, Germany.
- Tatiana Latychevskaia: Numerical reconstruction of holograms and diffraction patterns of individual biomolecules
Microscopy Conference MC 2011, 28.08-02.09.2011, Kiel, Germany.
- Mirna Saliba: Microlens-assisted Fourier transform holography
25th Rhine-Knee regional Meeting on X-ray crystallography of biomacromolecules, 28.09-30.09.2011, Campus Sursee, Switzerland.
- Tatiana Latychevskaia: Imaging individual biological molecules with coherent low-energy electrons
25th Rhine-Knee regional Meeting on X-ray crystallography of biomacromolecules, 28.09-30.09.2011, Campus Sursee, Switzerland.
- Tatiana Latychevskaia: Coherent diffraction imaging of individual biological molecules using low-energy electrons
ARC Centre of Excellence for Coherent X-ray Science, 6th Annual Workshop, 10.10-12.10.2011 Melbourne, Australia.

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Master theses

- **Experimental Study of the Binding Properties between Water and DNA**
Flavio Lanfranconi, Physik-Institut, Universität Zürich, June 2011.
- **Design and Implementation of a Miniaturized Electron Column**
Flavio Wicki, Physik-Institut, Universität Zürich, November 2011.

19.2.5 Physical Systems Biology and non-equilibrium Soft Matter

Articles

- **Integrating Mechanical Control Theory into Models of Biological Development**
V. Petrov, and C.M. Aegerter, *Journal of Mechanics in Medicine and Biology* **11**, 713 (2011).
- **Scattered light fluorescence microscopy in three dimensions**
G. Ghielmetti and C.M. Aegerter, *Optics Express* **20**, 3744 (2012).

Articles in press

- **Velocity distributions of uniformly heated three dimensional granular gases**
C.C. Maass, G. Maret, and C.M. Aegerter.

- **Integrating force sensing and signalling pathways in a model for the regulation of size in the wing imaginal disc of *Drosophila***
T. Aegerter-Wilmsen, M.B. Heimlicher, A.C. Smith, C.M. Aegerter, and K. Basler.
- **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.
- **Direct evidence for localization of light in highly turbid samples**
T. Sperling, W. Bühler, C.M. Aegerter, and G. Maret.

Master thesis

- **Elastic Properties of Two-dimensional Foams**
M. Schindlberger, Master's Thesis, Universität Zürich, 2011.

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Conference reports

- **In-vivo imaging**
U. Nienhaus and C.M. Aegerter, WingX retreat, Schwarzsee, Switzerland (July 13-15 2011).
- **Photo-elastic properties of the wing imaginal disc of *Drosophila*.**
T. Schluck and C.M. Aegerter, WingX retreat, Murten, Switzerland (March 4-5 2011).
- **Mechanical growth regulation of *Drosophila* wing discs. (poster)**
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck and C.M. Aegerter, URPP Systemsbiology and functional Genomics conference; Grindelwald, Switzerland (October 3-4, 2011).
- **Mechanical growth regulation of *Drosophila* wing discs. (poster)**
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck and C.M. Aegerter, SystemsX.ch Systemsbiology conference; Basel, Switzerland (October 24-26, 2011).

Invited lectures

- C.M. Aegerter: Elastic properties of the wing imaginal disc of *Drosophila*.
Colloquium in Plant Sciences, Universität Bern, Switzerland (21.03.2011).
- C.M. Aegerter: Was hat Physik mit Systembiologie zu tun?
Physikalische Gesellschaft Zürich, ETHZ, Switzerland (24.03.2011).
- C.M. Aegerter: Mechanical growth regulation of the wing imaginal disc of *Drosophila*.
Swiss Soft Matter Day, Basel, Switzerland (08.06.2011).
- C.M. Aegerter: Imaging through turbid layers.
Biomedical Photonics Network meeting, Neuchatel, Switzerland (30.11.2011).
- C.M. Aegerter: Imaging through turbid layers
Seminar in Biophotonics, University Hospital Zurich, Switzerland (08.12.2011).
- C.M. Aegerter: Forschung und Lehre in Physik und Biologie an der Universität Zürich
Presentation Lions-Club Winterthur, Switzerland (01.02.2012).