

19 Publications

19.1 Elementary particles and their interactions

19.1.1 ArDM

Articles

- **First results on the light readout from the 1-ton ArDM liquid argon detector for dark matter searches**
C. Amsler *et al.*, Journal of Instrumentation **5** (2010) P11003.
- **Development and test in liquid argon of the light readout system for the ArDM experiment**
V. Boccone, AIP Conf. Proc. Volume **1182** (2009) 280.
- **The ArDM, a ton-scale liquid argon experiment for direct Dark Matter Detection**
P. Otyugova, AIP Conf. Proc., Volume **1241** (2010) 435.
- **The ArDM-a ton-scale liquid argon experiment for direct Dark Matter Detection**
P. Otyugova, Proc. 5th Patras Workshop on Axions, WIMPs and WISPs, Durham, UK, DESY-PROC-2009-05.
- **The Argon Dark Matter Experiment**
C. Regenfus, Proceedings of the TAUP 2009 Conference, Rome, J. Phys. Conf. Ser. **203** (2010) 012024.

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Articles in press

- **ArDM: a ton-scale LAr detector for direct Dark Matter searches**
A. Marchionni *et al.* (ArDM Collaboration), Proc. 1st Int. Workshop towards the Giant Liquid Argon Charge Imaging Exp. (GLA2010), Tsukuba, Japan, arXiv:1012.5967v1 [physics.ins-det].

Lectures

- C. Amsler: **Search for WIMPS in liquid argon**
WIN11– 23rd Int. Workshop on Weak Interactions and Neutrinos, Cape Town, South Africa, 31 January 2011.
- C. Regenfus: **ArDM a ton scale LAr WIMP detector prototype**
6th Patras Workshop on Axions, WIMPs and WISPs, Zurich, 7 July 2010.
- W. Creus: **Light yield from nuclear recoils in liquid argon**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 22 June 2010.

PhD thesis

- **Light Readout for a 1 ton Liquid Argon Dark Matter Detector**
V. Boccone, Inaugural Dissertation, Universität Zürich, 2010.

PUBLICATIONS

19.1.2 ATHENA, AEGIS

Lectures

- C. Regenfus: **Relevant input and experience with Si-detectors from ATHENA**
Workshop on Antimatter Physics, Bergen, Norway, 23 February 2011.
- Y. Allkofer: **Central Detector: boundary conditions**
Workshop on Antimatter Physics, Bergen, Norway, 22 February 2011.
- C. Amsler: **A hybrid detector for antigravity measurements**
Workshop on Antimatter Physics, Bergen, Norway, 22 February 2011.
- J. Storey: **Central detector: possible technologies**
Workshop on Antimatter Physics, Bergen, Norway, 22 February 2011.
- J. Storey: **The AEGIS Inner Detector**
the University of Bern, 12 January 2011.

19.1.3 CDMS

Articles

- **Results from a Low-Energy Analysis of the CDMS II Germanium Data**
Z. Ahmed, D. S. Akerib, S. Arrenberg, C. N. Bailey, D. Balakishiyeva, L. Baudis, *et al.* (CDMS Collaboration), *Phys. Rev. Lett.* **106**, 131302 (2011).
- **Low-threshold analysis of CDMS shallow-site data**
D.S. Akerib, M.J. Attisha, L. Baudis, D.A. Bauer, A.I. Bolozdynya, *et al.* (CDMS Collaboration), *Phys. Rev. D* **82**, 122004 (2010).

PhD thesis

- **A Search for Weakly Interacting Particles with the Cryogenic Dark Matter Search Experiment**
Tobias Bruch, PhD Thesis, Physik-Institut, Universität Zürich, 2010.

Lectures

- S. Arrenberg: **Search for Inelastic Dark Matter with the CDMS experiment**
Seminar, LPNHE, Paris, February 10th, 2011.
- S. Arrenberg: **Search for Dark Matter with the CDMS experiment**
Darkness Visible, Cambridge, August 3rd, 2010.
- S. Arrenberg: **Search for Inelastic Dark Matter with the CDMS experiment**
IDM2010, Montpellier, July 26th, 2010.

19.1.4 DARWIN

Articles

- **DARWIN: dark matter WIMP search with noble liquids**
Laura Baudis (DARWIN Consortium), Proceedings of Science, PoS(IDM2010)122 (2010).
- **Complementarity of Dark Matter Direct Detection Targets**
Miguel Pato, Laura Baudis, Gianfranco Bertone, Roberto Ruiz de Austri, Louis E. Strigari and Roberto Trotta, Phys. Rev. D **83**, 083505 (2011).

Lecture

- L. Baudis: **DARWIN: DARK matter WImp search with Noble liquids**
Identification of Dark Matter, University of Montpellier, July 23, 2010.

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19.1.5 GERDA

Article

- **Procurement, production and testing of BEGe detectors depleted in ^{76}Ge**
M. Agostini, L. Baudis, E. Belotti *et al.*, Nuclear Physics B, Proceedings Supplements (2011).

Lecture

- F. Froberg: **GERDA / EXO**
CHIPP Meeting, Gersau, August 23rd, 2010.

19.1.6 XENON

Articles

- **A study of the electromagnetic background in the XENON100 experiment**
E. Aprile, K. Arisaka, F. Arneodo, A. Askin, L. Baudis, *et al.* (XENON100 Collaboration), Phys. Rev. D. 082001 (2011).
- **First Dark Matter Results from the XENON100 Experiment**
E. Aprile, K. Arisaka, F. Arneodo, A. Askin, L. Baudis, *et al.* (XENON100 Collaboration), Phys. Rev. Lett. **105**, 131302 (2010).
- **Design and Performance of the XENON10 Dark Matter Experiment**
E. Aprile, J. Angle, F. Arneodo, L. Baudis, A. Bernstein, *et al.* (XENON10 Collaboration), Astroparticle Physics **34** (2011), 679-698.
- **Spatially uniform calibration of a liquid xenon detector at low energies using $^{83}\text{m-Kr}$**
A. Manalaysay, T. Marrodan Undagoitia, A. Askin, L. Baudis, A. Behrens, A. Kish, O. Lebeda, D.

PUBLICATIONS

Venos, Review of Scientific Instruments **81**, 073303 (2010).

Article in press

- **Background measurements in the Gran Sasso Underground Laboratory**

M. Haffke, L. Baudis, T. Bruch, A.D. Ferella, T. Marrodan Undagoitia, M. Schumann, Y.-F. Te, A. van der Schaaf, Nucl. Instr. Meth. Phys. Res. Sect. A.

PhD thesis

- **Studien des externen Untergrunds eines XENON Detektors auf Tonnenskala zum Nachweis von Dunkler Materie**

Marijke Haffke, PhD Thesis, Physik-Institut, Universität Zürich, 2010.

Lectures

- L. Baudis: **Status report on XENON100, XENON1T and DARWIN**

ApPEC SAC Meeting, DESY Zeuthen, November 22, 2010.

- L. Baudis: **Dark Matter Searches with XENON100, XENON1T and DARWIN**

Dark Matter: Its Origin, Nature and Prospects for Detection, GGI Arcetri, Florence, June 17, 2010.

- L. Baudis: **XENON, ZEPLIN and DARWIN**

Aspera SAC meeting, LPNHE, Paris, April 13, 2010.

- T. Marrodan Undagoitia: **The XENON100 experiment: status and results**

DPG, Karlsruhe, March 30th, 2011.

- T. Marrodan Undagoitia: **Status of XENON100**

E15 seminar, Munich, October 30th, 2010.

- T. Marrodan Undagoitia: **Status of the XENON100 experiment**

Darkness Visible, Cambridge, August 3rd, 2010.

- T. Marrodan Undagoitia: **Dark matter search with the XENON100 experiment**

Joint Astroparticle physics seminar, Dortmund, May 11, 2010.

- T. Marrodan Undagoitia: **Dark matter search with the XENON100 experiment**

Joint EP PP seminar, CERN, Geneva, April 19, 2010.

- M. Schumann: **The Search for Dark Matter with XENON**

Seminar, Universität Erlangen, January 19th, 2011.

- M. Schumann: **XENON: Results and Prospects**

TPC Symposium 2010, Paris, December 15th, 2010.

- M. Schumann: **Dark Matter and the XENON Experiment**

Lunch Seminar, Weizmann Institute, Israel, November 4th, 2010.

- M. Schumann: **DARWIN**

ASPERA Technology Meeting, Munich, October 22nd, 2010.

- M. Schumann: **XENON and DARWIN**
CHIPP Meeting, Gersau, August 23rd, 2010.
- M. Schumann: **XENON100**
IDM2010, Montpellier, July 26th, 2010.
- M. Schumann: **Dark Matter and the XENON100 Experiment**
CP3 seminar, Université catholique Louvain, June 24th, 2010.
- M. Schumann: **Dark Matter and the XENON100 Experiment**
Particle Physics Seminar, University of Geneva, Geneva, April 14, 2010.
- A. Kish: **The XENON100 Detector for Dark Matter Searches**
CHIPP Meeting, Gersau, August 23rd, 2010.
- A. Behrens: **Calibration of the XENON100 PMTs**
SPS meeting 2010, Basel, June 22th, 2010.

19.1.7 H1

Articles

- **Measurement of Leading Neutron Production in Deep-Inelastic Scattering at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C68** (2010), 381.
- **Inelastic Production of J/Ψ Mesons in Photoproduction and Deep Inelastic Scattering at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C68** (2010), 401.
- **Diffraction Dijet Photoproduction in ep Collisions at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C70** (2010), 15.
- **Measurement of Charm and Beauty Jets in Deep Inelastic Scattering at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C71** (2011), 1509.
- **Measurement of the Diffractive Deep-Inelastic Scattering Cross Section with a Leading Proton at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C71** (2011), 1578.
- **Search for Squarks in R-Parity Violating Supersymmetry in ep Collisions at HERA**
F.D. Aaron *et al.* (H1-Collaboration), European Physical Journal **C71** (2011), 1572.

Articles in print

- **Measurement of the Inclusive $e^\pm p$ Cross Section at High Inelasticity y and of the Structure Function F_L**
F.D. Aaron *et al.* (H1-Collaboration),
DESY 10 – 228, arXiv:1012.4355 [hep-ex], European Physical Journal **C** (2011).
- **Search for Lepton Flavour Violation at HERA**
F.D. Aaron *et al.* (H1-Collaboration),
DESY 11 – 044, arXiv:1103.4938 [hep-ex], Physics Letters **B** (2011).

Invited conference contributions

- Katharina Müller: **Photon Structure in Photoproduction**
Photon 2009: 18th International Workshop on Photon-Photon Collisions,
Hamburg, Germany, Jan 2010, DESY-PROC-2009-03, p. 181-189.
- Katharina Müller, on behalf of the H1 and ZEUS collaborations: **Precision measurements with jets and particles at HERA**
QCD 2010, 15th International QCD-conference,
Montpellier, France, June 2010, Nucl. Phys. Proc. Suppl. **207-208** (2010), 17-20.

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19.1.8 LHCb

Articles

- **First observation of $B_s \rightarrow D_{s2}^{*+} X \mu \nu$ decays**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. **B698** (2011) 14.
- **Measurement of $\sigma(\text{pp} \rightarrow \text{b}\bar{\text{b}}X)$ at $\sqrt{s}=7$ TeV in the forward region**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. **B694** (2010) 209.
- **Prompt K_s production in pp collisions at $\sqrt{s}=0.9$ TeV**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. **B693** (2010) 69.
- **Search for the rare decays $B_s^0 \rightarrow \mu^+ \mu^-$ and $B^0 \rightarrow \mu^+ \mu^-$**
LHCb-Collaboration, R. Aaij *et al.*, Phys. Lett. **B699** (2011) 330.

Submitted Articles

- **First observation of $B_s^0 \rightarrow J/\psi f_0(980)$ decays**
LHCb-Collaboration, R. Aaij, Phys. Lett. B, arXiv:1102.0206 [hep-ex].
- **Measurement of J/ψ production in pp collisions at $\sqrt{s}=7$ TeV**
LHCb-Collaboration, R. Aaij, Eur. Phys. J. C, arXiv:1103.0423 [hep-ex].

LHCb notes and reports

- **Measurements of muon identification efficiencies for $Z \rightarrow \mu\mu$ and $W \rightarrow \mu\nu$ decays**
J. Anderson and J. Keaveney, CERN-LHCb-INT-2011-001.
- **W and Z cross-section results**
T. Shears *et al.* CERN-LHCb-ANA-2011-032.
- **Search for the rare decays $B_s^0 \rightarrow \mu^+ \mu^-$ with the LHCb experiment**
C. Adrover *et al.* CERN-LHCb-ANA-2011-007.

- **Measurement of the trigger efficiency for $Z \rightarrow \mu\mu$ and $W \rightarrow \mu\nu$ events in Reco06-Stripping10 data at LHCb**
A. Bursche, J. Anderson, K. Müller, CERN-LHCb-INT-2010-057.
- **A Measurement of the Tracking Efficiency for High-pT Tracks in Reco06-Stripping10 Collision Data**
M. De Cian, CERN-LHCb-INT-2010-058.
- **Revision of Adding TT Hits to Long Tracks**
M. De Cian, CERN-LHCb-INT-2010-020.

Conference contributions

- Katharina Müller: **Electroweak physics: results and prospects**
Physics at LHCb, 479 WE-Heraeus Seminar, 26th-29th April 2011, Bad Honnef, Germany.
- Michel De Cian: **First Mass Measurements at LHCb**
XIX International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2011), Newport News, Virginia, United States Of America, 11 - 15 Apr 2011.
- Christian Elsasser: **Rare B decays at LHC**
SM@LHC, Workshop, IPPP Durham, 11. - 14. April 2011, London, Great Britain.
- Nicola Chiapolini: **Understanding Cryptography: From Caesar to Public-Key**
iCSC (inverted Cern School of Computing) 2011, 3 - 4. March 2011, CERN, Geneva, Switzerland.
- Jonathan Anderson: **Prospects for indirect luminosity measurements at LHCb**
Workshop LHC Lumi Days, 13th-14th January 2011, CERN, Geneva, Switzerland.
- Katharina Müller: **W and Z production in forward region at LHCb**
EIPPHANY 2011 conference, 10th - 12th January 2011, Cracow, Poland.
- Angela Büchler: **Search for New Physics with Rare Heavy Flavour Decays at LHCb**
SILAFEA conference, 6th - 12th December 2011, Valparaíso, Chile.
- Olaf Steinkamp: **LHCb Status, First Physics and Discovery Potential**
Workshop on Discovery Physics at the LHC, 5.-10. Dec 2010, Mpumalanga, South Africa.
- Mark Tobin: **Performance of the LHCb Silicon Tracker in pp Collisions at the LHC**
IEEE Nuclear Science Symposium, 30th October to 6th November 2010, Knoxville, Tennessee, U.S.A.
- Jonathan Anderson: **Constraints on low x PDFs from Drell Yan processes, and first studies of exclusive dimuon production with the LHCb experiment**
XL International Symposium on Multiparticle Dynamics (ISMD10), 21st - 25th September 2010, Antwerp, Belgium.
- Mark Tobin: **Early experience with running the TT in LHCb and first results on electroweak physics studies**
CHIPP workshop on the High-Energy Frontier, Universität Zürich, 1st September 2010, Zürich.
- Michel De Cian: **Grid Computing in LHCb. Or: How I learned to stop worrying and love distributed analysis**
CHIPP workshop on the high-energy frontier, Universität Zürich, 1st September 2010, Zürich.

PUBLICATIONS

- Jeroen van Tilburg: **LHCb: Preparation for LHC beam**
CHIPP annual meeting 2010, 23.-24. August 2010, Appenberg.
- Juan P. Palacios: **LHCb: first results and prospects for the 2010-11 run**
16th International Symposium on Particles, Strings and Cosmology (PASCOS 2010)
19–23 July 2010, Valencia, Spain.
- Michel De Cian: **A Tale of Two Ts: The Performance of the Tracker Turicensis at LHCb**
Annual meeting of the Swiss Physical Society, 22. June 2010, Basel.
- Jeroen van Tilburg: **Search for New Physics in Heavy Quark Decays at LHCb**
prepared for 9th International Conference on Hyperons, Charm and Beauty Hadrons (BEACH),
Perugia, Italy, 21 - 26 June 2010.
- Jonathan Anderson: **First performance results for the LHCb Silicon Tracker**
Proceedings 12th Topical Seminar on Innovative Particle and Radiation Detectors (IPRD10)
7–10 June 2010, Siena, Italy, LHCb-PROC-2010-029.
- Jonathan Anderson: **Electroweak physics at LHCb**
Seminar at the School of Physics and Astronomy, University of Manchester, May 26, 2010.

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19.1.9 CMS

Articles

- **Study of the Bs meson with forthcoming LHC data at CMS**
B. Millán Mejías, VIII Latin American Symposium on Nuclear Physics and Applications,
AIP Conf. Proc. Volume **1265** (2010) 264.
- **Beam Background Effects in the CMS Pixel Detector**
H. Snoek, Proc. of Science (Vertex 2010 - 013).
- **First measurements of beauty quark production at $\sqrt{s} = 7$ TeV with the CMS experiment**
V. Chiochia, Nuclear Physics **A 855** (2011) 436.
- **Search for Quark Compositeness with the Dijet Centrality Ratio in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **105** (2010) 262001.
- **Search for Dijet Resonances in 7 TeV pp Collisions at CMS**
CMS Collaboration, Phys. Rev. Lett. **105** (2010) 211801.
- **Observation of Long-Range Near-Side Angular Correlations in Proton-Proton Collisions at the LHC**
CMS Collaboration, J. High Energy Physics **1009** (2010) 091.
- **CMS Tracking Performance Results from early LHC Operation**
CMS Collaboration, Eur. Phys. J. **C 70** (2010) 1165.
- **First Measurement of the Underlying Event Activity at the LHC with $\sqrt{s} = 0.9$ TeV**
CMS Collaboration, Eur. Phys. J. **C 70** (2010) 555.

- **Measurement of the charge ratio of atmospheric muons with the CMS detector**
CMS Collaboration, Phys. Lett. **B 692** (2010) 83.
- **Transverse-momentum and pseudorapidity distributions of charged hadrons in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **105** (2010) 022002.
- **First Measurement of Bose-Einstein Correlations in proton-proton Collisions at $\sqrt{s} = 0.9$ and 2.36 TeV at the LHC**
CMS Collaboration, Phys. Rev. Lett. **105** (2010) 032001.
- **Transverse momentum and pseudorapidity distributions of charged hadrons in pp collisions at $\sqrt{s} = 0.9$ and 2.36 TeV**
CMS Collaboration, J. High Energy Physics **1002** (2010) 041.
- **Measurement of the muon stopping power in lead tungstate**
CMS Collaboration, J. Instrumentation **5** (2010) P03007.
- **Measurement of $B\bar{B}$ Angular Correlations based on Secondary Vertex Reconstruction at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Physics **1103** (2011) 136.
- **Dijet Azimuthal Decorrelations in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 122003.
- **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.
- **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 a heavy gauge boson W' in the final state with an electron and large missing transverse energy in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Lett. **B 698** (2011) 21.
- **Search for Microscopic Black Hole Signatures at the Large Hadron Collider**
CMS Collaboration, Phys. Lett. **B 697** (2011) 434.
- **Measurements of Inclusive W and Z Cross Sections in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Physics **1101** (2011) 080.
- **Measurement of the Isolated Prompt Photon Production Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 082001.
- **Search for Stopped Gluinos in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. **106** (2011) 011801.
- **Charged particle multiplicities in pp interactions at $\sqrt{s} = 0.9, 2.36,$ and 7 TeV**
CMS Collaboration, J. High Energy Physics **1101** (2011) 079.

PUBLICATIONS

- **First Measurement of the Cross Section for Top-Quark Pair Production in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Lett. B **695** (2011) 424.
- **Inclusive b-hadron production cross section with muons in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Physics **1103** (2011) 090.
- **Search for Heavy Stable Charged Particles in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Physics **1103** (2011) 024.
- **Prompt and non-prompt J/ψ production in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Eur. Phys. J. C **71** (2011) 1575.

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Article in press

- **Search for Large Extra Dimensions in the Diphoton Final State at the Large Hadron Collider**
CMS Collaboration, J. High Energy Phys. [arXiv:1103.4279].
- **Measurement of the lepton charge asymmetry in inclusive W production in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. [arXiv:1103.3470].
- **Search for Physics Beyond the Standard Model in Opposite-Sign Dilepton Events at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. [arXiv:1103.1348].
- **Search for Resonances in the Dilepton Mass Distribution in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, J. High Energy Phys. [arXiv:1103.0981].
- **Search for Supersymmetry in pp Collisions at $\sqrt{s} = 7$ TeV in Events with Two Photons and Missing Transverse Energy**
CMS Collaboration, [arXiv:1103.0953].
- **Search for a W' boson decaying to a muon and a neutrino in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, [arXiv:1103.0030].
- **Study of Z boson production in PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV**
CMS Collaboration, Phys. Rev. Lett. [arXiv:1102.5435].
- **Measurement of W^+W^- Production and Search for the Higgs Boson in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Lett. B [arXiv:1102.5429].
- **Search for a Heavy Bottom-like Quark in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, [arXiv:1102.4746].
- **Strange Particle Production in pp Collisions at $\sqrt{s} = 0.9$ and 7 TeV**
CMS Collaboration, [arXiv:1102.4282].
- **Measurement of Dijet Angular Distributions and Search for Quark Compositeness in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. [arXiv:1102.2020].

- **Observation and studies of jet quenching in PbPb collisions at nucleon-nucleon center-of-mass energy = 2.76 TeV**
CMS Collaboration, [arXiv:1102.1957].
- **First Measurement of Hadronic Event Shapes in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Lett. B [arXiv:1102.0068].
- **Measurement of Bose-Einstein Correlations in pp Collisions at $\sqrt{s} = 0.9$ and 7 TeV**
CMS Collaboration, J. High Energy Phys. [arXiv:1101.3518].
- **A new CMS pixel detector for the LHC luminosity upgrade**
C. Favaro, Nucl. Instr. Meth. A, [arXiv:1104.1288].
- **Measurement of the Inclusive Upsilon production cross section in pp collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. D [arXiv:1012.5545].
- **Search for Pair Production of Second-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. [arXiv:1012.4033].
- **Search for Pair Production of First-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV**
CMS Collaboration, Phys. Rev. Lett. [arXiv:1012.4033].

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Invited Lectures

- E. Aguiló: **The alignment of the CMS Silicon Tracker**
12th Topical Seminar on Innovative Particle and Radiation Detectors, Siena, Italy, 8 June 2010.
- V. Chiochia: **Beauty quark production with the CMS experiment**
Workshop on Heavy Particles at the LHC, ETH Zurich, 6 January 2011.
- V. Chiochia: **Beauty and charm production with the CMS experiment**
CERN Physics Days: Charm and Bottom Quark Production at the LHC, CERN, 3 December 2010.
- V. Chiochia: **Measurement of the inclusive beauty production with the CMS experiment**
4th Int. Conf. on Hard and Electromagnetic Probes of High-Energy Nucl. Coll., Eilat, Israel, 10 October 2010.
- V. Chiochia: **Tracker for b -cross section measurements**
CMS Tracker Week, La Biodola, Isola d'Elba, Italy, 25 May 2010.
- S. de Visscher: **First results from the CMS experiment**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 21 June 2010.
- S. de Visscher: **Evaluation of the CMS pixel detector data from the first LHC collisions**
12th Topical Seminar on Innovative Particle and Radiation Detectors, Siena, Italy, 8 June 2010.
- C. Favaro: **The upgrade of the CMS Pixel Detector**
8th Int. Conf. on Rad. Effects on Semiconductor Materials Detectors and Devices, Florence, 12 October 2010.
- C. Favaro: **Hit resolution measurement with the CMS pixel detector**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 21 June 2010.

PUBLICATIONS

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- A. Jaeger: **Data comparison with Monte-Carlo**
CMS Tracker Week, La Biodola, Isola d'Elba, Italy, 4 May 2010.
- A. Jaeger : **Performance of the CMS silicon pixel detector: results from the first data**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 22 June 2010.
- M. Ivova Rikova: **Measurement of the Lorentz angle in the CMS barrel pixel detector**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 21 June 2010.
- B. Millán Mejías: **Study of the B_s -meson with forthcoming data at the CMS detector**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 22 June 2010.
- P. Otyugova: **First CMS physics results**
CHIPP Workshop on the High Energy Frontier, Zurich, 1 September 2010.
- T. Rommerskirchen: **Supersymmetry at CMS with multijet events: an experimental strategy**
Annual meeting of the Swiss Physical Society, Basel, Switzerland, 21 June 2010.
- A. Schmidt: **Performance of Track and Vertex Reconstruction and B -Tagging Studies with CMS in pp Collisions at $\sqrt{s} = 7$ TeV**
Kruger 2010: Workshop on Discovery Physics at the LHC, Kruger National Park (South Africa), 5 December 2010.
- A. Schmidt: **b -quarks in the CMS experiment: from detector design to physics results**
Seminar at the University of Freiburg i.B., Germany, 15 February 2011.
- H. Snoek: **Beam backgrounds in the CMS pixel detector**
19th Int. Workshop on Vertex Detectors, Loch Lomond, Scotland, 6 June 2010.
- H. Snoek: **The CMS pixel detector: commissioning and performance**
6th Trento Workshop on Advanced Silicon Radiation Detectors, FBK-IRST, Trento, 3 March 2011.

PhD thesis

- **Supersymmetry with Multijet Events at CMS: an Experimental Strategy**
T. Rommerskirchen, Inaugural Dissertation, Universität Zürich, 2010.

19.1.10 Miscellaneous

Articles

- **Review of Particle Physics**
Particle Data Group (C. Amsler), Journal of Physics **G 37** (2010) 075021.
- **Particle Physics Booklet**
Particle Data Group (C. Amsler), IOP Publishing, 2010.
- **Note on scalar mesons**
C. Amsler, T. Gutsche, S. Spanier and N.A. Törnqvist,
Journal of Physics G: Nucl. and Part. Phys. **37** (2010) 075021-680.

- **The $\eta(1405)$, $\eta(1475)$, $f_1(1420)$, and $f_1(1510)$**
C. Amsler and A. Masoni, Journal of Physics G: Nucl. and Part. Phys. **37** (2010) 075021-630.
- **Quark Model**
C. Amsler, T. DeGrand and B. Krusche,
Journal of Physics G: Nucl. and Part. Phys. **37** (2010) 075021-184.

Errata

- **A New Measurement of K_{e4}^+ Decay and the s -Wave $\pi\pi$ Scattering Length**
E865-Collaboration, S. Pislak *et al.*, Erratum: Phys. Rev. Lett. **105** (2010), 019901.
- **High Statistics Measurement of K_{e4} Decay Properties**
E865-Collaboration, S. Pislak *et al.*, Erratum: Phys. Rev. **D81** (2010), 119903 (E).

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Lectures

- L. Baudis: **Dark matter searches with CDMS and XENON**
Particle Physics Seminar, Tel Aviv University, February 24, 2011.
- L. Baudis: **Direct searches for dark matter in the Milky Way**
Physics Colloquium, Weizmann Institute of Science, Rehovot, February 17, 2011.
- L. Baudis: **Direct searches for dark matter in the Milky Way**
Physics Colloquium, TU Dresden, February 1, 2011.
- L. Baudis: **Direct searches for dark matter in the Milky Way**
Munich Physics Colloquium, TUM, Munich, January 17, 2011.
- L. Baudis: **Highlights from the astroparticle physics session**
Summary talk, TEXAS2010, Heidelberg, December 10, 2010.
- L. Baudis: **Direct searches for dark matter in the Milky Way**
Physics Colloquium, University of Heidelberg, November 26, 2010.
- L. Baudis: **Recent results on direct WIMP searches from the CDMS-II and XENON100 experiments**
Physics Seminar, INFN Roma La Sapienza, October 11, 2010.
- L. Baudis: **Direct searches for dark matter**
Physics Colloquium, Stony Brook University, New York, September 7, 2010.
- L. Baudis: **Direct dark matter searches: an overview**
SUSY 2010, Physikalisches Institut, Bonn, August 26, 2010.
- L. Baudis: **Direct dark matter searches**
Physics at the LHC, DESY, Hamburg, June 12, 2010.
- L. Baudis: **Direct searches for dark matter**
Physics Colloquium, Mainz University, May 11, 2010.
- T. Marrodan Undagoitia: **Direct dark matter search using liquid noble gases**
TeVPA, Paris, July 19th, 2010.

PUBLICATIONS

- T. Marrodan Undagoitia: **Direct dark matter search using liquid noble gases**
TEXAS workshop, Heidelberg, December 9th, 2010.
- T. Marrodan Undagoitia: **Neutrino astrophysics and particle physics in LAGUNA**
Seminars on Astroparticle physics, DESY, Hamburg, May 03, 2010.
- A. Manalaysay: **Dark matter detection with noble liquids**
Rencontres de Moriond, Eletroweak Interactions and Unified Theories, La Thuile, Italy,
March 18th, 2011.

Outreach

Lectures

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- C. Amsler: **La Recherche au CERN**
Café Scientifique, University of Fribourg, Switzerland, 17 February 2011.
- L. Baudis: **Die unerträgliche Leichtigkeit der Neutrinos**
Montagsforum, Dornbirn, Austria, May 17, 2010.

19.2 Condensed matter

19.2.1 Superconductivity and Magnetism

Articles

- **Identification of magnetic properties of few nm sized FePt crystalline particles by characterizing the intrinsic atom order using aberration corrected S/TEM**
J. Biskupek, J. R. Jinschek, U. Wiedwald, M. Bendele, L. Han, P. Ziemann, and U. Kaiser,
Ultramicroscopy **110**, 820-825 (2010).
- **Microwave-Hydrothermal Synthesis of Nanostructured Zinc-Copper Gallates**
F. Conrad, Y. Zhou, M. Yulikov, K. Hametner, S. Weyeneth, G. Jeschke, D. Günther, J.-D. Grunwaldt,
and G. R. Patzke, Eur. J. Inorg. Chem. **13**, 2036-2043 (2010).
- **Direct measurement of the London penetration depth in $\text{YBa}_2\text{Cu}_3\text{O}_{6.92}$ using low-energy μSR**
R. F. Kiefl, M. D. Hossain, B. M. Wojek, S. R. Dunsiger, G. D. Morris, T. Prokscha, Z. Salman,
J. Baglo, D. A. Bonn, R. Liang, W. N. Hardy, A. Suter, and E. Morenzoni,
Phys. Rev. B **81**, 180502-1-4 (2010).
- **Quasiparticle relaxation dynamics in spin-density-wave and superconducting $\text{SmFeAsO}_{1-x}\text{F}_x$ single crystals**
T. Mertelj, P. Kusar, V. V. Kabanov, L. Stojchevska, N. D. Zhigadlo, S. Katrych, Z. Bukowski,
J. Karpinski, S. Weyeneth, and D. Mihailovic, Phys. Rev. B **81**, 224504-1-9 (2010).
- **Anisotropic superconducting properties of single-crystalline $\text{FeSe}_{0.5}\text{Te}_{0.5}$**
M. Bendele, S. Weyeneth, R. Puzniak, A. Maisuradze, E. Pomjakushina, K. Conder, V. Pomjakushin,
H. Luetkens, S. Katrych, A. Wisniewski, R. Khasanov, and H. Keller,
Phys. Rev. B **81**, 224520-1-10 (2010).

- **Comment on “Muon-spin-rotation study of the superconducting properties of Mo_3Sb_7 ”**
R. Khasanov, A. Shengelaya, I. M. Savić, C. Baines, and H. Keller,
Phys. Rev. B **82**, 016501-1-3 (2010).
- **Iron isotope effect on the superconducting transition temperature and the crystal structure of FeSe_{1-x}**
R. Khasanov, M. Bendele, K. Conder, H. Keller, E. Pomjakushina, and V. Pomjakushin,
New J. Phys. **12**, 073024-1-8 (2010).
- **Suppression of the antinodal coherence of superconducting $(\text{Bi,Pb})_2(\text{Sr,Lu})_2\text{CuO}_{6+\delta}$ as revealed by muon spin rotation and angle-resolved photoemission**
R. Khasanov, T. Kondo, M. Bendele, Y. Hamaya, A. Kaminski, S. L. Lee, S. J. Ray, and T. Takeuchi,
Phys. Rev. B **82**, 020511(R)-1-4 (2010).
- **Th-substituted SmFeAsO : Structural details and superconductivity with T_c above 50 K**
N. D. Zhigadlo, S. Katrych, S. Weyeneth, R. Puzniak, P. J. W. Moll, Z. Bukowski, J. Karpinski,
H. Keller, and B. Batlogg, Phys. Rev. B **82**, 064517-1-11 (2010).
- **Field Dependent Superfluid Density in Optimally Doped $\text{SmFeAsO}_{1-x}\text{F}_y$**
S. Weyeneth, M. Bendele, R. Puzniak, F. Muranyi, A. Bussmann-Holder, N. D. Zhigadlo, S. Katrych,
Z. Bukowski, J. Karpinski, A. Shengelaya, R. Khasanov, and H. Keller,
Europhys. Lett. **91**, 47005-1-6 (2010).
- **Electron spin dynamics and electron spin resonance in graphene**
B. Dóra, F. Murányi, and F. Simon, Europhys. Lett. **92**, 17002-1-5 (2010).
- **Magnetic anisotropy and ferromagnetic correlations above the Curie temperature in Eu_2CuSi_3 single crystals**
C. D. Cao, R. Klingeler, H. Vinzelberg, N. Leps, W. Löser, G. Behr, F. Muranyi, V. Kataev, and
B. Büchner, Phys. Rev. B **82**, 134446 (2010).
- **Microscopic Study of the Superconducting State of the Iron Pnictide RbFe_2As_2 via muon spin rotation**
Z. Shermadini, J. Kanter, C. Baines, M. Bendele, Z. Bukowski, R. Khasanov, H.-H. Klauss, H. Luetkens,
H. Maeter, G. Pascua, B. Batlogg, and A. Amato, Phys. Rev. B **82**, 144527-1-5 (2010).
- **Bulk superconductivity at 2.6 K in undoped RbFe_2As_2**
Z. Bukowski, S. Weyeneth, R. Puzniak, J. Karpinski, and B. Batlogg,
Physica C **470**, S328-S329 (2010).
- **Tuning the superconducting and magnetic properties of $\text{Fe}_y\text{Se}_{0.25}\text{Te}_{0.75}$ by varying the iron content**
M. Bendele, P. Babkevich, S. Katrych, S. N. Gasaliya, E. Pomjakushina, K. Conder, B. Roessli,
A. T. Boothroyd, R. Khasanov, and H. Keller, Phys. Rev. B **82**, 212504-1-4 (2010).
- **Intrinsic and structural isotope effects in iron-based superconductors**
R. Khasanov, M. Bendele, A. Bussmann-Holder, and H. Keller, Phys. Rev. B **82**, 212505-1-4 (2010).
- **Comment on “Isotope Effect in Multi-Band and Multi-Channel Attractive Systems and Inverse Isotope Effect in Iron-Based Superconductors”**
A. Bussmann-Holder and H. Keller, J. Phys. Soc. Jpn. **79**, 126001-1-6 (2010).

PUBLICATIONS

110

- **Anomalies in the Fermi Surface and Band Dispersion of Quasi-One-Dimensional CuO Chains in the High-Temperature Superconductor $\text{YBa}_2\text{Cu}_4\text{O}_8$**
T. Kondo, R. Khasanov, J. Karpinski, S.M. Kazakov, N.D. Zhigadlo, Z. Bukowski, M. Shi, A. Bendounan, Y. Sassa, J. Chang, S. Pailh s, J. Mesot, J. Schmalian, H. Keller, and A. Kaminski, *Phys. Rev. Lett.* **105**, 267003-1-4 (2010).
- **Structural dependence of the efficiency of functionalization of silica-coated FeO_x magnetic nanoparticles studied by ATR-IR**
A. Vargas, I. Shnitko, A. Teleki, S. Weyeneth, S. E. Pratsinis, and A. Baiker, *App. Surf. Sci.* **257**, 2861-2869 (2011).
- **Synthesis and crystal growth of $\text{Cs}_{0.8}(\text{FeSe}_{0.98})_2$: a new iron-based superconductor with $T_c = 27$ K**
A. Krzton-Maziopa, Z. Shermadini, E. Pomjakushina, V. Pomjakushin, M. Bendele, A. Amato, R. Khasanov, H. Luetkens, and K. Conder, *J. Phys.: Condens. Matter* **23**, 052203-1-4 (2011).
- **Absence of Orbital Currents in Superconducting $\text{YBa}_2\text{Cu}_4\text{O}_8$ Using a Zeeman-Perturbed Nuclear-Quadrupole-Resonance Technique**
S. Str ssle, B. Graneli, M. Mali, J. Roos, and H. Keller, *Phys. Rev. Lett.* **106**, 097003-1-4 (2011).
- **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**, 117602-1-4 (2011).
- **Pressure Effects in the Isoelectronic $\text{REFe}_{0.85}\text{Ir}_{0.15}\text{AsO}$ System**
B. Maroni, D. Di Castro, M. Hanfland, J. Boby, C. Vercesi, M. C. Mozzati, S. Weyeneth, H. Keller, R. Khasanov, C. Drathen, P. Dore, P. Postorino, and L. Malavasi, *J. Am. Chem. Soc.* **133**, 3252-3255 (2011).
- **Anisotropic phase diagram and superconducting fluctuations of single-crystalline $\text{SmFeAsO}_{0.85}\text{F}_{0.15}$**
U. Welp, C. Chaparro, A. E. Koshelev, W. K. Kwok, A. Rydh, N. D. Zhigadlo, J. Karpinski, and S. Weyeneth, *Phys. Rev. B* **83**, 100513(R) (2011).

Bachelor and Master theses

- **Sauerstoffisotopeneffekt des Pseudo-Gap-Ph nomens im Kuprat-Hochtemperatursupraleiter $\text{Y}_{0.6}\text{Pr}_{0.4}\text{Ba}_2\text{Cu}_3\text{O}_7$**
E. Eisenring, Bachelor thesis, Universit t Z rich.
- **Lanthan-139 NQR Messungen im HTC-Supraleiter $\text{LaBa}_2\text{Cu}_3\text{O}_7$**
L. Maag, Bachelor thesis, Universit t Z rich.
- **Magnetic and Superconducting properties of FeSe_{1-x} , dependency on sample preparation**
A. Ichsanov, Master thesis, Universit t Z rich.
- **Measurements of Longitudinal Nuclear Magnetism with NMR Probes**
S. Gross, Master thesis, Universit t Z rich.

Articles in press

- **Identifying the Pairing Mechanism in Fe₂As₂ Based Superconductors: Gaps and Isotope Effects**
A. Bussmann-Holder, A. Simon, H. Keller, and A. R. Bishop, *J. Supercond. Nov. Magn.*
- **Strong coupling between the Eu²⁺ spins and the Fe₂As₂ layers in EuFe_{1.9}Co_{0.1}As₂ observed with NMR**
Z. Guguchia, J. Roos, A. Shengelaya, S. Katrych, Z. Bukowski, S. Weyeneth, F. Murányi, S. Strässle, A. Maisuradze, J. Karpinski, and H. Keller, *Phys. Rev. B.*
- **Rearrangement of the antiferromagnetic ordering at high magnetic fields in SmFeAsO and SmFeAsO_{0.9}F_{0.1} single crystals**
S. Weyeneth, P. J. W. Moll, R. Puzniak, K. Ninos, F. F. Balakirev, R. D. McDonald, H. B. Chan, N. D. Zhigadlo, S. Katrych, Z. Bukowski, J. Karpinski, H. Keller, B. Batlogg, and L. Balicas, *Phys. Rev. B*
- **Diamagnetism, Nernst signal, and finite-size effects in superconductors above the transition temperature T_c**
T. Schneider and S. Weyeneth, *Phys. Rev. B.*
- **Oxygen Isotope Effect in Cuprates Results from Polaron-Induced Superconductivity**
S. Weyeneth and K. A. Müller, *J. Supercond. Nov. Magn.*

Conference reports

- **Anisotropic properties of superconducting single crystals of La_{2-x}Sr_xCuO₄**
S. Bosma, S. Weyeneth, G. Deng, E. Pomjakushina, K. Conder and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **Anisotropic superconducting properties of single-crystalline FeSe_{0.5}Te_{0.5}**
M. Bendele, S. Weyeneth, R. Puzniak, A. Maisuradze, E. Pomjakushina, K. Conder, V. Pomjakushin, H. Luetkens, S. Katrych, A. Wisniewski, R. Khasanov, and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **NMR Search for orbital-current Effects in under-doped YBCO**
B. Graneli, S. Strässle, J. Roos, M. Mali, H. Keller, and J. Karpinski, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **Electron Paramagnetic Resonance (EPR) investigation of EuFe_{2-x}Co_xAs₂ ($x = 0, 0.1, 0.2$) single crystals**
Z. Guguchia, A. Shengelaya, F. Murányi, A. Maisuradze, S. Weyeneth, S. Katrych, Z. Bukowski, J. Karpinski, and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **Muon spin rotation study of the CaC₆ superconductor at low temperatures**
F. Murányi, M. Bendele, R. Khasanov, S. Weyeneth, C. Baines, and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **Anisotropic properties and multi-gap superconductivity in SmFeAsO_{1-x}F_y**
S. Weyeneth, R. Puzniak, N. D. Zhigadlo, S. Katrych, Z. Bukowski, J. Karpinski, M. Bendele, F. Murányi, A. Bussmann-Holder, A. Shengelaya, R. Khasanov, and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.

PUBLICATIONS

- **Low energy muon spin rotation study of the Meissner effect in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ heterostructures**
B. M. Wojek, E. Morenzoni, A. Suter, T. Prokscha, Z. Salman, G. Logvenov, A. Gozar, I. Bozovic, and H. Keller, Annual meeting of the Swiss Physical Society, Basel, June 21-22, 2010.
- **Electron Paramagnetic Resonance (EPR) investigation of $\text{EuFe}_{2-x}\text{Co}_x\text{As}_2$ ($x = 0, 0.1, 0.2$) single crystals**
Z. Guguchia, A. Shengelaya, F. Murányi, A. Maisuradze, S. Weyeneth, S. Katrych, Z. Bukowski, J. Karpinski, and H. Keller,
9th PSI Summer School on condensed matter research, Zuoz, Switzerland, August 7-13, 2010.
- **Anisotropic properties and multi-gap superconductivity in iron-pnictide superconductors**
S. Weyeneth, R. Puzniak, N. D. Zhigadlo, S. Katrych, Z. Bukowski, J. Karpinski, M. Bendele, F. Murányi, A. Bussmann-Holder, A. Shengelaya, R. Khasanov, and H. Keller,
23rd General Conference of the Condensed Matter Division of the European Physical Society, CDM23, Warsaw, Poland, August 30 - September 3, 2010.
- **Iron isotope effect on the superconducting transition temperature and the crystal structure of FeSe_{1-x}**
M. Bendele, R. Khasanov, K. Conder, E. Pomjakushina, V. Pomjakushin, A. Bussmann-Holder, and H. Keller, March Meeting of the American Physical Society, Dallas, USA, March 21-25, 2011.
- **Generics of the diamagnetism, Nernst signal, and finite size effects in superconductors above the transition temperature**
S. Weyeneth and T. Schneider,
March Meeting of the American Physical Society, Dallas, USA, March 21-25, 2011.

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Invited lectures

- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
International Conference on Superconductivity and Magnetism,
ICSM 2010, Antalya, Turkey, April 25-30, 2010.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
6th International Conference Science and Engineering of Novel Superconductors,
CIMTEC 2010, Montecatini Terme, Italy, June 13-18, 2010.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
3rd International Symposium on Structure-Property Relationships in Solid State Materials,
Max Planck Institute for Solid State Research, Stuttgart, Germany, June 27 - July 2, 2010.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**
International Conference on Quantum Phenomena in Complex Matter, Stripes 2010, Ettore Majorana Foundation and Centre for Scientific Culture Erice, Erice, Italy, July 19-25, 2010.
- H. Keller: **Isotope effects and multi-band superconductivity in layered high-temperature superconductors**

23rd General Conference of the Condensed Matter Division of the European Physical Society, CDM23, Warsaw, Poland, August 30 - September 3, 2010.

- M. Bendele: **Muon Spin Rotation and Relaxation (μ SR) studies on Fe-based superconductors**
Festkörperphysikseminar, Universität Ulm, Germany, February 27, 2011.
- H. Keller: **From cuprate to iron-based superconductors - what are the key elements of high-temperature superconductivity?**
High Pressure Science Society of America, Study of Matter at Extreme Conditions, SMEC2011, Miami, U.S.A., March 27 - April 2, 2011

19.2.2 Phase transitions and superconducting photon detectors

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Articles

- **Nanoscale fabrication by intrinsic suppression of proximity-electron exposures and general considerations for easy and effective top-down fabrication**
H. Bartolf, K. Inderbitzin, L. B. Gómez, A. Engel, A. Schilling,
J. of Micromech. and Microeng. **20** (2010) 125015.
- **Influence of thickness, width and temperature on critical current density of Nb thin film structures**
K. Il'in, D. Rall, M. Siegel, A. Engel, A. Schilling, A. Semenov, H.-W. Huebers,
Phys. C, **470** (2010) 953-956.

Articles in press

- **Dynamic stability of organic conducting polymers and its replications in electrical conduction and degradation mechanics**
E. F. C. Chimamkpm, T. Schweizer, A. Schilling, J. M. F. Ferreira, Advanced Functional Materials.

Contributed Conference Presentations

- A. Engel: **Superconducting Single-Photon Detectors from meV to keV**
The 6th Patras Workshop on Axions, WIMPs and WISPs, University of Zurich, Switzerland, 5.-9.7.2010.
- H. Bartolf: **Dissipative Fluctuation Mechanisms in BCS-Superconductors**
Kryoelektronische Bauelemente Kryo 2010, Zeuthen (Berlin), Germany, 3.-5.10.2010.

Invited Lectures

- A. Schilling: **Bose-Einstein condensates in magnetic insulators from a traditional perspective**
Spintronics Days at UPV-EHU, Bilbao, Spain, 28.7.2010.
- H. Bartolf: **Research on Nanoscaled Superconducting Highspeed Single-Photon Detectors Enabled by Easy and Effective Top-Down Fabrication**
ABB Switzerland, 9.9.2010.

PUBLICATIONS

- A. Engel: **Superconducting Nanostructures and Detectors**
University of San Andrés, La Paz, Bolivia, 17.12.2010.

19.2.3 Surface Physics

Articles

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- **Structure determination of the coincidence phase of graphene on Ru(0001)**
W. Moritz, B. Wang, M.-L. Bocquet, T. Brugger, T. Greber, J. Wintterlin, S. Günther,
Phys. Rev. Lett. 104, 136102:1-4 (2010).
- **Graphene on Ru(0001): a corrugated and chiral structure**
D. Martoccia, M. Björk, C. M. Schlepütz, T. Brugger, S. A. Pauli, B. D. Patterson, T. Greber, P. R. Willmott, New J. Phys. 12, 043028:1-12 (2010).
- **Robust spin polarization and spin textures on stepped Au(111) surfaces**
J. Lobo-Checa, F. Meier, J. H. Dil, T. Okuda, M. Corso, V. N. Petrov, M. Hengsberger, L. Patthey, J. Osterwalder, Phys. Rev. Lett. 104, 187602:1-4 (2010).
- **Graphene and hexagonal boron nitride layers: nanostructures with three bond hierarchy levels**
T. Greber, e-J. Surf. Sci. Nanotechnol. 8, 62-64 (2010).
- **Graphene based quantum dots**
H. G. Zhang, H. Hu, Y. Pan, J. H. Mao, M. Gao, H. M. Guo, S. X. Du, T. Greber, H.-J. Gao, J. Phys.: Condens. Matter 22, 302001:1-4 (2010).
- **Rare-earth surface alloying: a new phase for GdAu₂**
M. Corso, M. J. Verstraete, F. Schiller, M. Ormaza, L. Fernandez, T. Greber, M. Torrent, A. Rubio, J. E. Ortega, Phys. Rev. Lett. 105, 016101:1-4 (2010).
- **Negative-electron-affinity diamondoid monolayers as high-brilliance source for ultrashort electron pulses**
S. Roth, D. Leuenberger, J. Osterwalder, J. E. Dahl, R. M. K. Carlson, B. A. Tkachenko, A. A. Fokin, P. R. Schreiner, M. Hengsberger, Chem. Phys. Lett. 495, 102-108 (2010).
- **Nanotexture switching of single-layer hexagonal boron nitride on rhodium by intercalation of hydrogen atoms**
T. Brugger, H. Ma, M. Iannuzzi, S. Berner, A. Winkler, J. Hutter, J. Osterwalder, T. Greber, Angew. Chem. Int. Ed. 49, 6120-6124 (2010).
- **Corrugated single layer templates for molecules: from h-BN nanomesh to graphene based quantum dot arrays**
H. Ma, M. Thomann, J. Schmidlin, S. Roth, M. Morscher, T. Greber, Front. Phys. China, 5, 387-392 (2010).
- **Structural influence on the Rashba-type spin splitting in surface alloys**
I. Gierz, B. Stadtmüller, J. Vuorinen, M. Lindroos, F. Meier, J. H. Dil, K. Kern, C. R. Ast, Phys. Rev. B 81, 145430:1-7 (2010).
- **Comment on "Potential energy landscape for hot electrons in periodically nanostructured graphene"**
H. G. Zhang, T. Greber, Phys. Rev. Lett. 105, 219701 (2010).

- **Strong 3p-T1u hybridization in Ar@C60**
M. Morscher, A. Seitsonen, S. Ito, H. Takagi, N. Dragoë, T. Greber,
Phys. Rev. A 82, 051201(R):1-4 (2010).
- **Direct observation of spin-polarized surface states in the parent compound of a topological insulator using spin- and angle-resolved photoemission spectroscopy in a Mott-polarimetry mode**
D. Hsieh, L. Wray, D. Qian, Y. Xia, J. H. Dil, F. Meier, L. Patthey, J. Osterwalder, G. Bihlmayer, Y. S. Hor, R. J. Cava, M. Z. Hasan, New J. Phys. 12, 125001:1-9 (2010).
- **Interference of spin states in photoemission from Sb/Ag(111)**
F. Meier, V. Petrov, H. Mirhosseini, L. Patthey, J. Henk, J. Osterwalder, J. H. Dil,
J. Phys.: Condens. Matter 23, 072207:1-6 (2011).
- **Controlling the effective mass of quantum well states in Pb/Si(111) by interface engineering**
B. Slomski, F. Meier, J. Osterwalder, J. H. Dil, Phys. Rev. B 83, 035409:1-7 (2011).
- **Real-space multiple scattering method for angle-resolved photoemission and valence-band photoelectron diffraction and its application to Cu(111)**
P. Krüger, F. Da Pieve, J. Osterwalder, Phys. Rev. B 83, 115437:1-8 (2011).
- **Topological phase transition and texture inversion in a tunable topological insulator**
Su-Yang Xu, Y. Xia, L. A. Wray, S. Jia, F. Meier, J. H. Dil, J. Osterwalder, B. Slomski, A. Bansil, H. Lin, R. J. Cava, M. Z. Hasan, Science 332, 560-564 (2011).

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Articles in press

- **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.
- **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.
- **Synthesis of graphene on rhodium from 3-pentanone**
S. Roth, J. Osterwalder, T. Greber, Surf. Sci..
- **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.

Articles for the general public

- **Modengekoppelte Laser: (Im-)Pulse für die Forschung**
M. Hengsberger, D. Leuenberger, S. Roth, Bulletin VSE/SEV Electrosuisse, 06/2010, S. 48-52.
- **Materialien für die Computer von morgen: Topologische Isolatoren - die neueste Entdeckung der Festkörperphysik**
J. Osterwalder, Neue Zürcher Zeitung, 7. Juli 2010, S. 57.

PUBLICATIONS

PhD theses

- **Rashba-type spin-orbit coupling in the surface alloys on Ag(111) probed by spin- and angle-resolved photoemission spectroscopy**
Fabian Meier, PhD Thesis, Physik-Institut, Universität Zürich, 2010.
- **Tools for investigating molecular magnetism: a new Mott detector and resonant photoelectron diffraction with circular dichroism**
Martin Morscher, PhD Thesis, Physik-Institut, Universität Zürich, 2010.

Master theses

- 116** - **COPHEE and SMOKE: in-situ surface magneto-optic Kerr effect setup for the spin- and angle-resolved photoemission experiment COPHEE**
Gabriel Landolt, Master Thesis, Physik-Institut, Universität Zürich, 2010.

Contributed conference presentations including posters

- H. Cun: **Multiple roles of carbon chains in quinacridone monolayers**
Swiss Physical Society Meeting, Basel, 22.06.10.
- M. Hengsberger: **Electron emission dynamics from negative-electron-affinity diamondoid monolayers**
1st International Conference on Ultrafast Structural Dynamics (ICUSD), Lausanne, 10.06.10.
- H. Yanagisawa: **Optical control of field emission sites by femtosecond laser pulses**
2nd International Workshop on Ultrafast Nanooptics, Bad Türkheim, Germany, 28.06.10.
- J. H. Dil: **Spin- and angle-resolved photoemission on model systems for spintronics**
Low-Energy Electrodynamics in Solids 2010, Les Diablerets, 09.07.10.
- B. Slomski: **Rashba-type spin-orbit splitting in PbBiSi (Poster)**
PSI Summer School on Magnetic Phenomena, Zuz, 07.-13.08.10.
- J. H. Dil: **Interference of spin states in photoemission from Sb/Ag(111)**
European Conference on Surface Science (ECOSS-27), Groningen, The Netherlands, 02.09.10.
- B. Slomski: **Interface mediated spin effects in Pb quantum well states**
European Conference on Surface Science (ECOSS-27), Groningen, The Netherlands, 02.09.10.
- H. Cun: **Water and xenon self-assembly on h-BN nanomesh (Poster)**
Graphene International School, Cargese, France, 11.-23.10.10.
- S. Roth: **CVD growth of graphene on rhodium (Poster)**
Graphene International School, Cargese, France, 11.-23.10.10.
- J. H. Dil: **Manipulation of spin structures in quantum well states and topological insulators**
Gerhard Ertl Young Investigator Award, DPG Frühjahrsmeeting, Dresden, Germany, 17.03.11.

Invited lectures

- T. Greber: **Looking inside endofullerenes with photoemission**
IFW-Seminar, Leibniz Institute for Solid State and Materials Research, Dresden, Germany, 03.05.2010.
- J. H. Dil: **Spin- and angle-resolved photoemission of low-dimensional Rashba systems**
IAP-Seminar, Technische Universität Wien, Austria, 04.05.10.
- J. H. Dil: **Spin-resolved ARPES on low-dimensional systems with strong spin-orbit interaction**
Solid State Physics Seminar, MIT, Boston, 17.05.10.
- J. H. Dil: **Spin- and angle-resolved photoemission: a direct probe for spintronics and topological insulators**
Molecular Physics Seminar, Fritz-Haber-Institut, Berlin, 28.05.10.
- F. Meier: **Spin- and angle-resolved photoemission spectroscopy on topological insulators**
Electronic, Transport, and Optical Properties of Low-Dimensional Systems (WS10-ETOLDS) Workshop, Valencia, Spain, 01.06.10.
- T. Greber: **Templates for molecules: from h-BN nanomesh to graphene based quantum dots**
Poelsema Group Seminar, Universiteit Twente, The Netherlands, 03.06.10.
- H. Cun: **Multiple roles of carbon chains in quinacridone monolayers**
5th Swiss Molecules on Surfaces (MolCH) Meeting, Bern, 10.06.10.
- J. H. Dil: **Spin-resolved ARPES on low-dimensional systems with strong spin-orbit interaction**
Albert Fert Group Seminar, Unité Mixte de Physique CNRS/Thales, Orsay, France 10.06.10.
- J. H. Dil: **SARPES: a direct probe for spintronics and topological insulators**
Seminar, Nanoscale Science Department, MPI Stuttgart, Germany, 23.06.10.
- H. Yanagisawa: **Optical control of field emission sites**
6th Workshop on Numerical Methods for Optical Nanostructures, ETH Zürich, 05.07.19.
- J. Osterwalder: **Surface states as a bonanza for spin-polarized electrons**
37th International Conference on Vacuum Ultraviolet and X-Ray Physics, Vancouver, Canada, 13.07.10.
- J. H. Dil: **The timely and the unexpected: spin-resolved ARPES on systems with strong spin-orbit interaction**
Seminar, Donostia International Physics Center, San Sebastian, Spain, 19.08.10.
- H. Yanagisawa: **Optical control of field-emission sites**
Seminar, Institute of Solid State Physics, University of Tokyo, Japan, 21.09.20.
- H. Yanagisawa: **Optical control of field-emission sites**
Oshima Group Seminar, Waseda University, Tokyo, Japan, 30.09.10.
- J. Osterwalder: **Measuring spin polarization vectors of surface states**
Workshop on Spin-Resolved Photoemission, Advanced Light Source Users Meeting, LBL Berkeley, California, USA, 14.10.10.
- J. H. Dil: **The timely and the unexpected: spin-resolved ARPES on systems with strong spin-orbit interaction**
PSI-IOP (Beijing) Joint Workshop, Bad Zurzach, 15.10.10.

PUBLICATIONS

- J. Osterwalder: **Topological insulators: new physics with old materials**
Kolloquium, EMPA Dübendorf, 02.11.10.
- J. Osterwalder: **Hexagonal boron nitride monolayer systems and nanomeshes**
Materials Research Society Fall Meeting, Boston, Massachusetts, USA, 30.11.10.
- J. H. Dil: **From model systems to topological insulators; spectroscopy on systems with strong spin-orbit interaction**
Seminar, Laboratorium für Festkörperphysik, ETHZ, 09.12.10.
- M. Hengsberger: **(Time-resolved) photoelectron spectroscopy (Tutorial)**
NCCR MUST Assembly Meeting, Lenk, 12.01.11.
- 118 - T. Greber: **Resonant photoelectron diffraction (RXPd) for the determination of magnetic and atomic structure**
Symposium on Surface and Nanoscience (SSNS'11), Shizukuishi, Japan, 20.01.11.
- T. Greber: **Resonant photoelectron diffraction (RXPd)**
Seminar, Physics Department, Hiroshima University, Japan, 24.01.11.
- T. Greber: **Resonant photoelectron diffraction ... and how photons turn the electrons**
26th Workshop on Novel Materials and Superconductors, Planeralm, Austria, 17.02.11.
- J. H. Dil: **A photoemission experimentalist's view on topological insulators**
Edgar Lüscher Seminar, Klosters, 16.01.11.
- J. Osterwalder: **An introduction to topological insulators**
Zürich Physics Colloquium, Uni/ETH Zürich, 16.03.11.

19.2.4 Physics of Biological Systems

Articles

- **Fabrication and characterization of low aberration micrometer-sized electron lenses**
E. Steinwand, J.-N. Longchamp and H.-W. Fink, *Ultramicroscopy* 110(9) (2010) 1148-1153.
- **Depth-resolved holographic reconstructions by three-dimensional deconvolution**
T. Latychevskaia, F. Gehri and H.-W. Fink, *Optics Express* 18(21) (2010) 22527-22544.
- **Graphene as a transparent conductive support for studying biological molecules by transmission electron microscopy**
R. R. P. Blake *et al.*, *Appl. Phys. Lett.* 97(15): 153102 (2010).
- **Highly collimated electron beams from double-gate field emitter arrays with large collimation gate apertures**
P. Helfenstein, E. Kirk, K. Jefimovs, T. Vogel, C. Escher, H.-W. Fink, S. Tsujino,
Appl. Phys. Lett. 98(6) (2011) 061502.
- **Coherent low-energy electron diffraction on individual nanometer sized objects**
E. Steinwand, J.-N. Longchamp and H.-W. Fink, *Ultramicroscopy* 111(4) (2011) 282-284.

Articles in press

- **Field-emission characteristics of molded molybdenum nano-tip arrays with stacked collimation gate electrodes**
S. Tsujino, P. Helfenstein, E. Kirk, T. Vogel, C. Escher, and H.-W. Fink,
IEEE Electron Device Letters.
- **Novel Fourier-domain constraint for fast phase retrieval in coherent diffraction imaging**
T. Latychevskaia, J.-N. Longchamp and H.-W. Fink, arXiv:1102.3838v1.

Talks

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- T. Latychevskaia: **Coherent diffraction imaging**
seminar at the Institute of Genetics and Molecular and Cellular Biology, Strasbourg, France,
3 December 2010.
- T. Latychevskaia: **Coherent imaging of individual molecules with low-energy electrons**
seminar at the Physics Department EPFL Lausanne, Switzerland, 27 April 2010.
- T. Latychevskaia: **Imaging of individual molecules with coherent low-energy electrons**
Gordon Research Conference *Diffraction Methods In Structural Biology*, Bates College Lewiston, USA.
July 2010.
- T. Latychevskaia: **Numerical reconstruction of low-energy electron holograms**
Gordon Research Conference *Three Dimensional Electron Microscopy*, Lucca Barga, Italy, June 2010.
- P. Helfenstein: **Highly collimated electron beams from double-gate field-emitter arrays**
EMPA PhD Symposium, EMPA Dübendorf, 7.10.2010.
- P. Helfenstein: **Beam collimation properties of molded molybdenum field emitters**
IVNC, Palo Alto, California, USA, 27.7.2010.
- P. Helfenstein: **Electron beam properties of molybdenum field emitter arrays with stacked gates**
SPG Jahrestagung 2010, Basel, 22.6.2010.
- E. Steinwand: **Coherent diffraction imaging with low-energy electrons**
From Physics to Life Sciences, Dubrovnik, Croatia, June 2010.

PhD thesis

- **Coherent Diffraction Imaging with Low-Energy Electrons**
Elvira Steinwand, PhD Thesis, Physik-Institut, Universität Zürich, November 2010.

Bachelor theses

- **Kohärente Beugung niederenergetischer Elektronen: Beamstop und Probenpräparation**
Flavio Wicki, Bachelor thesis, Universität Zürich, Mai 2010.

PUBLICATIONS

- **Holographische Untersuchung an Graphitflakes**
Roland Stania, Bachelor thesis, Universität Zürich, January 2011.

19.2.5 Physical Systems Biology and non-equilibrium Soft Matter

Articles

- **Scattering based fluorescence microscopy: imaging through turbid media**
I.M. Vellekoop and C.M. Aegerter, *Optics Letters* **35**, 1245 (2010).
- **Photo-elastic properties of the wing imaginal disc of *Drosophila***
T. Schluck and C.M. Aegerter, *Europ. Phys. J. E* **33**,111 (2010).
- **Exploiting disorder for perfect focusing**
I.M. Vellekoop, A. Lagendijk, and A. P. Mosk, *Nature Photonics* **4**, 320 (2010).
- **Turbidity suppression from the ballistic to the diffusive regime in biological tissues using optical phase conjugation**
E.J. McDowell, M. Cui, I.M. Vellekoop, V. Senekerimyan, Z. Yaqoob, and C. Yang, *J. Biomed. Optics* **15**, 025004 (2010).

Articles in press

- **Integrating Mechanical Control Theory into Models of Biological Development**
V. Petrov, and C.M. Aegerter, *Journal of Mechanics in Medicine and Biology* (2011).
- **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

Conference reports including posters

- **In-vivo imaging**
U. Nienhaus and C.M. Aegerter, WingX retreat, Olivone, Switzerland (June 30th - July 2nd 2010).
- **Imaging through turbid media**
G. Ghielmetti, I.M. Vellekoop, and C.M. Aegerter,
WingX retreat, Olivone, Switzerland (June 30th - July 2nd 2010).
- **Photo-elastic properties of the wing imaginal disc of *Drosophila***
T. Schluck, A. Smith, and C.M. Aegerter,
WingX retreat, Olivone, Switzerland (June 30th - July 2nd 2010).
- **Mechanical growth regulation of *Drosophila* wing discs**
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck and C.M. Aegerter,
Workshop 'New trends on growth and form', Agay, France (June 20-25, 2010).

- **Imaging through turbid layers (poster)**
G. Ghielmetti, I.M. Vellekoop, and C.M. Aegerter,
Summer School "Mesoscopic Physics in Complex Media", Cargese, France (July 12-16, 2010).
- **Nonlinear effects in Anderson localization of light (poster)**
W. Bührer, S. Fiebig, T. Sperling, G. Maret, and C.M. Aegerter,
Summer School "Mesoscopic Physics in Complex Media", Cargese, France (July 12-16, 2010).
- **2D transmission profile of light through highly scattering media (poster)**
T. Sperling, W. Bührer, C.M. Aegerter, and G. Maret,
Summer School "Mesoscopic Physics in Complex Media", Cargese, France (July 12-16, 2010).
- **Effects of growth regulation by mechanical stress on epithelial tissues (poster)**
T. Aegerter-Wilmsen, A. Christen, A. Smith, C.M. Aegerter, E. Hafen, and K. Basler,
Systemsbiology of Development, Monte Verita, Switzerland (August 16th - 19th 2010).
- **Birefringent properties of developing trachea (poster)**
D. Assmann, T. Schluck, and C.M. Aegerter,
Systemsbiology of Development, Monte Verita, Switzerland (August 16th - 19th 2010).
- **Photo-elastic properties of the wing imaginal disc of Drosophila (poster)**
T. Schluck, D. Assmann, A. Smith, and C.M. Aegerter, Systemsbiology of Development, Monte Verita,
Switzerland (August 16th - 19th 2010).
- **Mechanical growth control of Drosophila wing imaginal discs**
U. Nienhaus, T. Aegerter-Wilmsen, T. Schluck and C.M. Aegerter, Workshop 'Nonlinear response of
soft matter',
Konstanz, Germany (February 28th - March 2nd, 2011).
- **Levitated granular gases**
C.C. Maass, N. Isert, G. Maret, and C.M. Aegerter., Workshop 'Nonlinear response of soft matter',
Konstanz, Germany (February 28th - March 2nd, 2011).

Invited lectures

- C.M. Aegerter: **Teaching Physics by using biological examples**
Symposium "Bringing modern biology to school", Zürich, Switzerland (14.6.2010).
- C.M. Aegerter: **Imaging through turbid layers**
International Conference on Systems Biology of Development, Monte Verita, Switzerland (17.8.2010).
- C.M. Aegerter: **Elastic properties of the wing imaginal disc of Drosophila**
Developmental Biology Seminar, Université de Geneve, Switzerland (13.10.2010).
- C.M. Aegerter: **Interferenz und Streuung - von der Physik zur Biologie**
Inaugural lecture, Universität Zürich, Switzerland (27.11.2010).
- C.M. Aegerter: **Interference and Scattering - from Physics to Biology**
Physics Colloquium, University of Fribourg, Switzerland (24.01.2011).
- C.M. Aegerter: **Elastic properties of the wing imaginal disc of Drosophila**
Colloquium in Plant Sciences, Universität Bern, Switzerland (21.03.2011).

PUBLICATIONS

- C.M. Aegerter: **Was hat Physik mit Systembiologie zu tun?**
Physikalische Gesellschaft Zürich, ETHZ, Switzerland (24.03.2011).