

## 14 Publications

### 14.1 Research group of Prof. C. Amsler

#### Articles

- *Positron plasma diagnostics and temperature control for antihydrogen production*  
M. Amoretti et al. (ATHENA Collaboration), Phys.Rev.Lett.91 (2003) 055001.
- *Detection of antihydrogen annihilations with a cryogenic pure-CsI crystal detector*  
C. Regenfus, C. Amsler, A. Glauser, D. Grögler, D. Lindelöf, H. Pruys,  
Nucl.Instr.Meth.A 504 (2003) 343.
- *Limits on the neutrino magnetic moment from the MUNU experiment*  
Z. Daraktchieva et al. (MUNU Collaboration), Phys.Lett.B 564 (2003) 190.
- *A measurement of the neutrino magnetic moment at the Bugey nuclear reactor*  
O. Link, Inaugural Dissertation, Universität Zürich, 2003.
- *The ATHENA antihydrogen apparatus*  
M. Amoretti et al. (ATHENA Collaboration), Nucl.Instr.Meth.A 518 (2004) 679.
- *Annihilation at rest of antiprotons and protons into neutral particles*  
C. Amsler et al. (CRYSTAL BARREL Collaboration), Nucl. Phys. A 720 (2003) 357.
- *Production and decay of  $\eta'(958)$  and  $\eta(1440)$  in  $\bar{p}p$  annihilation at rest*  
C. Amsler et al. (CRYSTAL BARREL Collaboration), Eur.Phys.J.C 33 (2004) 23.
- *Mesons beyond the naive quark model*  
C. Amsler and N. A. Törnqvist, Physics Reports 389 (2004) 61.
- *High rate production of antihydrogen*  
M. Amoretti et al. (ATHENA Collaboration), Phys.Lett.B 578 (2004) 23.
- *Antihydrogen production temperature dependence*  
M. Amoretti et al. (ATHENA Collaboration), Phys.Lett.B 583 (2004) 59.
- *A cryogenic silicon microstrip and pure-CsI detector for detection of antihydrogen annihilations*  
C. Regenfus, Nucl.Instr.Meth.A 501 (2003) 65.
- *Development of APD readout for pure-CsI crystals at cryogenic temperatures*  
A. Glauser, Nucl.Instr.Meth.A 504 (2003) 347.
- *Study of the Hamamatsu avalanche photodiode at liquid nitrogen temperatures*  
A. Dorokhov, A. Glauser, Y. Musienk, C. Regenfus, S. Reucroft and J. Swain,  
Nucl.Instr.Meth.A 504 (2003) 58.
- *New Developments in Vertex Reconstruction for CMS*  
R. Frühwirth, K. Prokofiev, T. Speer, P. Vanlaer and W. Waltenberger,  
Nucl.Instr.Meth.A 502 (2003) 699.
- *Vertex reconstruction framework and its implementation for CMS*  
T. Boccali, R. Frühwirth, W. Waltenberger, K. Prokofiev, T. Speer, P. Vanlaer,  
Proc. Conf. on Computing in High Energy and Nuclear Physics, La Jolla (2003).

- *New vertex reconstruction algorithms for CMS*  
R. Frühwirth, W. Waltenberger, K. Prokofiev, T. Speer, P. Vanlaer, E. Chabanat, N. Estre,  
Proc. Conf. on Computing in High Energy and Nuclear Physics, La Jolla (2003).
- *The Atlas and CMS trackers*  
Thomas Speer, Proc. 5th Int. Conf. on Hyperons, Charm and Beauty Hadrons, Vancouver (2002),  
Nucl. Phys. (Proc. Suppl.) 115 (2003) 318.
- *First production and detection of cold antihydrogen atoms*  
M.C. Fujiwara et al. (ATHENA Collaboration), Proc. Int. Conf. on Low Energy Antiproton  
Physics (LEAP'03), Yokohama, Japan, Nucl.Instr.Meth.B 214 (2004) 11.
- *Temperature dependence of antihydrogen production in the ATHENA experiment*  
G. Bonomi et al. (ATHENA Collaboration), Proc. Int. Conf. on Low Energy Antiproton Physics  
(LEAP'03), Yokohama, Japan, Nucl.Instr.Meth.B 214 (2004) 17.

#### Articles in press

- *Tests of silicon sensors for the CMS pixel detector*  
A. Dorokhov et al., Nucl.Instr.Meth.A, preprint physics/0311050.
- *Position Dependence of Charge Collection in Prototype Sensors for the CMS Pixel Detector*  
T. Rohe et al., IEEE-TNS 7, preprint physics/0312009.
- *Detection of antihydrogen annihilations with a Si-microstrip and pure CsI detector*  
I. Johnson et al. (ATHENA Collaboration), World Scientific.
- *Design and Test of the CMS Pixel Readout Chip*  
M. Barbero et al., Nucl.Instr.Meth..
- *Study of antiproton annihilation on neutrons into  $\omega\pi^-\pi^0$*   
C. Amsler et al. (CRYSTAL BARREL Collaboration), Phys. Lett. B.
- *Review of Particle Physics*  
S. Eidelman et al. (Particle Data Group), Phys. Lett. B.
- *Light exotic mesons*  
C. Amsler, Proc. Quark Confinement and the Hadron Spectrum V, Gargnano, 2002, World Scientific.
- *Vertex reconstruction in CMS*  
E. Chabanat et al., Proc. vertex 2003, Low Wood, Cumbria, UK, 2003, Nucl.Instr.Meth..
- *A Gaussian sum filter for vertex reconstruction*  
T. Speer, IX Int. Workshop on Advanced Computing and Analysis Techniques in Physics Research, ACAT03, Tsukuba, Japan, 2003, Nucl.Instr.Meth..

**Invited Lectures**

- C. Amsler: *Gluebälle*  
Invited talk, Physikalische Gesellschaft Zürich, 19.06.03.
- C. Amsler: *Experimental evidence for a large content of glue in the  $f_0(1500)$  meson*  
Colloquium, Budker Institute of Nuclear Physics, Novosibirsk, 12.9.03.
- C. Amsler: *Antihydrogen*  
Colloquium, Budker Institute of Nuclear Physics, Novosibirsk, 19.9.03.
- C. Amsler: *Exotic mesons*  
Seminar, Laboratory of Theoretical Physics of Sobolev Institute for Mathematics, 24.9.03.
- C. Amsler: *Antihydrogen*  
Colloque, Université de Neuchâtel, 10.11.03.
- C. Amsler: *Fabrication d'antimatière au CERN*  
Conférence d'orientation, EPF-Lausanne, 28.1.04.
- V. Chiochia: *Tests of silicon sensors for the CMS Pixel Detector*  
Invited talk, 3rd Workshop on radiation hard semiconductor devices for very high luminosity colliders, CERN, 4.11.03.
- I. Johnson: *Detection of antihydrogen annihilations with a Si-micro-strip and pure CsI crystal detector*  
Invited talk, 8th ICATPP Conference on Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications, Como, Italy, 9.10.03.
- A. Dorokhov: *Tests of silicon sensors for the CMS pixel detector*  
Invited talk, 6th International Conference on Large Scale Applications and Radiation Hardness of Semiconductor Detectors, Florence, Italy 30.11.03.
- C. Regenfus: *Cold Antihydrogen for probing world antiworld symmetry*  
Colloque, Université de Fribourg, 21.5.03.
- V. Chiochia: *The CMS Pixel Detector: Overview and Test Beam results*  
Seminar, DESY, 5.12.03.
- T. Speer: *A Gaussian sum filter for vertex reconstruction*  
Invited talk, IX Int. Workshop on Advanced Computing and Analysis Techniques in Physics Research, ACAT03, Tsukuba, Japan, 4.12.03.

**ATHENA Collaboration (2003):**

M. Amoretti, C. Amsler, G. Bonomi, A. Bouchta, P. Bowe, C. Carraro, C. L. Cesar, M. Charlton, M. Doser, V. Filippini, A. Fontana, M. C. Fujiwara, R. Funakoshi, P. Genova, J. S. Hangst, R. S. Hayano, L. V. Joergensen, I. Johnson, V. Lagomarsino, R. Landua, E. Lodi Rizzini, M. Macri, N. Madsen, P. Montagna, H. Pruys, C. Regenfus, P. Riedler, J. Rochet, A. Rotondi, G. Rouleau, G. Testera, A. Variola, D. P. van der Werf

**MUNU Collaboration (2003):**

C. Amsler, M. Avenier, C. Brogini, J. Busto, C. Cerna, Z. Daraktchieva, G. Gervasio, P. Jeanneret,

G. Jonkmans, D.H. Koang, J. Lamblin, D. Lebrun, O. Link, F. Ould-Saada, G. Puglierin, A. Stutz, A. Tadsen, J.-L. Vuilleumier

#### **CRYSTAL BARREL Collaboration (2003):**

C. Amsler, C. A. Baker, B. M. Barnett, C. J. Batty, P. Blüm, K. Braune, V. Credé, K. M. Crowe, M. Doser, W. Dünneweber, D. Engelhardt, M.A. Faessler, R. P. Haddock, F. H. Heinsius, N. P. Hessey, D. Jamnik, H. Kalinowsky, P. Kammel, J. Kisiel, E. Klempt, H. Koch, M. Kunze, U. Kurilla, R. Landua, H. Matthäy, C. A. Meyer, F. Meyer-Wildhagen, R. Ouared, K. Peters, B. Pick, M. Ratajczak, C. Regenfus, J. Reinnarth, A. Sarantsev, U. Strobusch, M. Suffert, J. S. Suh, U. Thoma, S. Wallis-Plachner, D. Walther, U. Wiedner

#### **PARTICLE DATA Group (2003):**

K. Hagiwara, K. Hikasa, K. Nakamura, M. Tanabashi, M. Aguilar-Benitez, C. Amsler, R.M. Barnett, P.R. Burchat, C.D. Carone, C. Caso, G. Conforto, O. Dahl, M. Doser, S. Eidelman, J.L. Feng, L. Gibbons, M. Goodman, C. Grab, D.E. Groom, A. Gurtu, K.G. Hayes, J.J. Hernandez-Rey, K. Honscheid, C. Kolda, M.L. Mangano, D.M. Manley, A.V. Manohar, J. March-Russell, A. Masoni, R. Miquel, K. Mönig, H. Murayama, S. Navas, K.A. Olive, L. Pape, C. Patrignani, A. Piepke, M. Roos, J. Terning, N.A. Törnqvist, T.G. Trippe, P. Vogel, C.G. Wohl, R.L. Workman, W.-M. Yao

## **14.2 Research group of Prof. H. Keller**

### **Articles**

- *Site-selective oxygen isotope effect on the magnetic field penetration depth in underdoped  $Y_{0.6}Pr_{0.4}Ba_2Cu_3O_{7-\delta}$*   
R. Khasanov, A. Shengelaya, E. Morenzoni, M. Angst, K. Conder, I.M. Savić, D. Lampakis, E. Liarokapis, A. Tatsi, and H. Keller, *Phys.Rev.B*, **68**, 220506(R)-1-4 (2003).
- *Relevance of electron-lattice coupling in cuprate superconductors*  
T. Schneider, R. Khasanov, K. Conder, and H. Keller,  
*J. Phys.: Condens. Matter* **15**, L763-L769 (2003).
- *Observation of the Conduction Electron Spin Polarization in the Ag Spacer of a Fe/Ag/Fe Trilayer*  
H. Luetkens, J. Korecki, E. Morenzoni, T. Prokscha, M. Birke, H. Glückler, R. Khasanov, H.-H. Klauss, T. Slezak, A. Suter, E.M. Forgan, Ch. Niedermayer, and F.J. Litterst,  
*Phys.Rev.Lett.***91**, 017204-1-4 (2003).
- *Vortex motion in type II superconductors probed by muon spin rotation and "SANS"*  
E.M. Forgan, D. Charalambous, P.G. Kealey, P.J.C. King, R. Khasanov, and A. Amato,  
*Physica B* **326**, 342-345 (2003).
- *Muonium formation at keV energies*  
T. Prokscha, E. Morenzoni, N. Garifianov, H. Glückler, R. Khasanov, H. Luetkens, and A. Suter,  
*Physica B* **326**, 51-54 (2003).
- *Low energy muons as probes of thin films and near surface regions*  
E. Morenzoni, R. Khasanov, H. Luetkens, T. Prokscha, A. Suter, N. Garifianov, H. Glückler, M. Birke, E. Forgan, H. Keller, J. Litterst, Ch. Niedermayer, and G. Nieuwenhuys,  
*Physica B* **326**, 196-204 (2003).

- *Diffusion of muons in metallic multilayers*  
H. Luetkens, J. Korecki, E. Morenzoni, T. Prokscha, N. Garifianov, H. Glückler, R. Khasanov, J. Litterst, T. Slezak, and A. Suter, *Physica B* **326**, 545-549 (2003).
- *Excess electron transport in cryoobjects*  
D.G. Eshchenko, V.G. Storchak, J.H. Brewer, S.P. Cottrell, and S.F.J. Cox, *Low Temp. Phys.* **29**, 185-195 (2003).
- *Excited muonium state in CdS*  
D.G. Eshchenko, V.G. Storchak, S.P. Cottrell, and S.F.J. Cox, *Phys.Rev.B* **68**, 073201-1-4 (2003).
- *Weakly bound muonium state in GaP*  
V.G. Storchak, D.G. Eshchenko, R.L. Lichti, and J.H. Brewer, *Phys.Rev.B* **67**, 121201(R)-1-4 (2003).
- *Relationship between the isotope effects on transition temperature, specific heat and penetration depths*  
T. Schneider, *Phys.Rev.B* **67**, 134514-1-7 (2003).
- *Three-Spin-Polarons and Their Elastic Interaction in Cuprates*  
B.I. Kochelaev, A.M. Safina, A. Shengelaya, H. Keller, K.A. Müller, K. Conder, *Mod. Phys. Lett. B* **17**, 415-421 (2003).
- *On the effect of heterovalent substitution in ruthenocuprates*  
P.W. Klamut, B. Dabrowski, S.M. Mini, M. Maxwell, M. Mais, I. Felner, U. Asaf, F. Ritter, A. Shengelaya, R. Khasanov, I. Savic, H. Keller, A. Wisniewski, R. Puzniak, I. Fita, C. Sulkowski, and M. Matusiak, *Physica C* **387**, 33-39 (2003).
- *Direct observation of the oxygen isotope effect on the in-plane magnetic field penetration depth in optimally doped  $YBa_2Cu_3O_{7-\delta}$*   
R. Khasanov, D.G. Eshchenko, H. Luetkens, E. Morenzoni, T. Prokscha, A. Suter, M. Mali, J. Roos, K. Conder, and H. Keller, *Phys.Rev.Lett.* **92** 057602-1-4 (2004).
- *Estimation of the surface-d to bulk-s crossover in the macroscopic superconducting wave function in cuprates*  
K.A. Müller, *J. Supercond.* **17**, 3-6 (2004).
- *Finite-size effect in  $Bi_2Sr_2CaCu_2O_{8+\delta}$  and  $YBa_2Cu_3O_{6.7}$  probed by the in-plane and out-of-plane penetration depths*  
T. Schneider and D. Di Castro, *Phys.Rev.B* **69**, 024502-1-7 (2004).
- *Probing inhomogeneities in type II superconductors by means of thermal fluctuations, magnetic fields, and isotope effects*  
T. Schneider, *J. Supercond.* **17**, 41-48 (2004).
- *Coexistence of magnetism and superconductivity in  $Eu_{1.4}Ce_{0.6}RuSr_2Cu_2O_{10}$ : A muon spin rotation and magnetization study*  
A. Shengelaya, R. Khasanov, D.G. Eshchenko, U. Asaf, I.M. Savić, H. Keller and K.A. Müller, *Phys.Rev.B* **69**, 024517-1-6 (2004).
- *Two Band Superconductivity in  $MgB_2$ : Basic Anisotropic Properties and Phase Diagram*  
M. Angst and R. Puzniak, in *Focus on Superconductivity*, ed. B. P. Martines, Vol. **1** (Nova Science Publishers, New York, 2004) (pp. 1-49).

**Articles in press**

- *Anisotropic properties of MgB<sub>2</sub> by torque magnetometry*  
M. Angst, D. Di Castro, R. Puzniak, A. Wisniewski, J. Jun, S. M. Kazakov, J. Karpinski, S. Kohout, and H. Keller, *Physica C*.
- *The mystery of superconductivity in the cuprates evinced by London penetration depths measurements*  
T. Schneider, Proceedings of the International School of Physics, on *The Physics of Complex Systems (new advances and perspectives)*, Varenna, Italy, 1-11 July, 2003.
- *Granular superconductivity in the cuprates evinced by finite size effects in the specific heat and London penetration depths*  
T. Schneider, Proceedings of the Nato Advance Research Workshop on *Symmetry and Heterogeneity in High-Temperature Superconductors*, Erice, Italy, 4-10 October, 2003.
- *Evidence for granularity, anisotropy and lattice distortions in cuprate superconductors and their implications*  
H. Keller and T. Schneider, Proceedings of the Nato Advance Research Workshop on *Symmetry and Heterogeneity in High-Temperature Superconductors*, Erice, Italy, 4-10 October, 2003.

**Diploma and PhD theses**

- *Studies of the oxygen-isotope effect on the magnetic field penetration depth in cuprate superconductors*  
Rustem Khasanov, Dissertation, Physik-Institut, Universität Zürich, 2003.
- *Beobachtung einer metallischen Phase in schwach dotiertem La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub> anhand von elektronenparamagnetischer Resonanz*  
Maria Bruun, Diplomarbeit, Physik-Institut, Universität Zürich, 2003.

**Conference reports**

- *Anisotropic superconducting properties of MgB<sub>2</sub> by torque magnetometry*  
M. Angst, D. Di Castro, R. Puzniak, A. Wisniewski, J. Jun, S. M. Kazakov, J. Karpinski, S. Kohout, H. Keller,  
M2S-HTSC-VII 7th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors, Rio de Janeiro, Brazil, 25-30 May, 2003.
- *Anisotropic superconducting properties of MgB<sub>2</sub> single crystals by torque magnetometry*  
M. Angst, R. Puzniak, A. Wisniewski, D. Di Castro, S. Kohout, H. Keller, J. Jun, S. M. Kazakov, J. Karpinski, MaNEP topical meeting: Materials: preparation, characterization and specific properties, Neuchâtel, Switzerland, 25-26 June, 2003.
- *Disorder driven phase transition of vortex matter in MgB<sub>2</sub>*  
M. Angst, R. Puzniak, A. Wisniewski, J. Jun, S. M. Kazakov, J. Karpinski,  
Third International Conference on Magnetic and Superconducting Materials (MSM03), Monastir, Tunisia, 1-4 September, 2003.

- *Mixed state anisotropies of the two-band superconductor MgB<sub>2</sub>*  
M. Angst, R. Puzniak, A. Wisniewski, D. Di Castro, S. Kohout, H. Keller, J. Jun, S. M. Kazakov, J. Karpinski, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Study of the boron isotope effect on the magnetic penetration depth in MgB<sub>2</sub>*  
D. Di Castro, M. Angst, D.G. Eshchenko, R. Khasanov, J. Roos, I.M. Savić, A. Shengelaya, S.L. Bud'ko, P.C. Canfield, K. Conder, J. Karpinski, S.M. Kazakov, R.A. Ribeiro, and H. Keller, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Torque magnetometric measurements of Oxygen Isotope Effects in La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub> and YBa<sub>2</sub>Cu<sub>4</sub>O<sub>8</sub> single crystals*  
S. Kohout, D. Di Castro, M. Angst, J. Roos, J. Karpinski, K. Conder, T. Sasagawa, H. Keller, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Pressure effect on in-plane magnetic field penetration depth in YBa<sub>2</sub>Cu<sub>4</sub>O<sub>8</sub>*  
R. Khasanov, D.G. Eshchenko, D. Di Castro, D. Andreika, K. Conder, S. Kazakov, K. Pomjakushina, I. Savić, T. Straessle, R. Tetean, and H. Keller, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Change of YBaCuO Cu nuclear quadrupole resonance parameters by immersion of YBaCuO powder grains into a nonconductive matrix*  
M. Mali, J. Roos, H. Keller, K. Conder, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Low frequency charge fluctuations in the millikelvin temperature region exhibited by strong plane Cu nuclear quadrupole relaxation observed in YBa<sub>2</sub>Cu<sub>4</sub>O<sub>8</sub>*  
M. Mali, J. Roos, H. Keller, A. Volodin, A. Egorov, A.V. Dooglav, 2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.
- *Measurements of superconducting properties on under- and overdoped La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub> single crystals by torque magnetometry*  
S. Kohout, T. Sasagawa, K. Conder, H. Keller, Annual meeting of the Swiss Physical Society, Neuchâtel, Switzerland, 3-4 March, 2004.
- *Single Crystal <sup>11</sup>B-NMR Study of Magnesium Diboride*  
S. Strässle, J. Roos, M. Mali, H. Keller, J. Karpinski, Annual meeting of the Swiss Physical Society, Neuchâtel, Switzerland, 3-4 March, 2004.
- *Anisotropy and internal field distribution of MgB<sub>2</sub> in the mixed state at low temperatures*  
D. Di Castro, M. Angst, R. Khasanov, D.G. Eshchenko, A. Shengelaya, I. Savic, S. Kohout, J. Roos, S. M. Kazakov, J. Karpinski, H. Keller, Annual meeting of the Swiss Physical Society, Neuchâtel, Switzerland, 3-4 March, 2004.
- *Site-selective oxygen isotope effect on the magnetic field penetration depth in underdoped Y<sub>0.6</sub>Pr<sub>0.4</sub>Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub>*  
R. Khasanov, A. Shengelaya, E. Morenzoni, M. Angst, K. Conder, I.M. Savić, D. Lampakis, E. Liarokapis, A. Tatsi, H. Keller, Annual meeting of the Swiss Physical Society, Neuchâtel, Switzerland, 3-4 March, 2004.

- *Low energy muon study of  $YBa_2Cu_3O_7/PrBa_2Cu_3O_7/YBa_2Cu_3O_7$  tri-layer*  
D.G. Eshchenko, R. Khasanov, E. Morenzoni, T. Proschka, A. Suter, H. Keller, Ø. Fischer, E. Koller, E. Treboux, P. Legendre,  
Annual meeting of the Swiss Physical Society, Neuchâtel, Switzerland, 3-4 March, 2004.

### Invited lectures

- M. Angst: *Anisotropic properties of the two-band superconductor  $MgB_2$  by torque magnetometry*  
Third International Conference on Magnetic and Superconducting Materials (MSM03), Monastir, Tunisia, 1-4 September, 2003.
- D. Eshchenko: *Muonium formation and ionization in semiconductors*  
LMU seminar, Laboratory for Muon-Spin Spectroscopy, Paul Scherrer Institut, Villigen, Switzerland, 12 June, 2003.
- H. Keller: *Oxygen-isotope effect on the magnetic penetration depth in cuprate superconductors*  
Shanghai, China, 3-5 April, 2003.
- H. Keller: *Oxygen-isotope effect on the magnetic penetration depth in cuprate superconductors*  
M2S-HTSC-VII 7th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors, Rio de Janeiro, Brazil, May 25-30, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
Institut für Festkörper- und Werkstofforschung Dresden, Dresden, Germany, 7 July, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
Fifth General Conference of the Balkan Physical Union, Vrnjacka Banja, Serbia and Montenegro, 25-29 August, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
Nato Advance Research Workshop on *Symmetry and Heterogeneity in High-Temperature Superconductors*, Erice, Italy, 4-10 October, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
16th International Symposium on Superconductivity (ISS2003), Tsukuba, Japan, 27-29 October, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
Tohoku University, Institute for Material Research, Sendai, Japan, 30 October, 2003.
- H. Keller: *Oxygen-isotope effect on the magnetic penetration depth in cuprate superconductors*  
International Workshop on Fermi Surface and Lattice Effects in Cuprate High Temperature Superconductors (AIST), Tsukuba, Japan, 31 October, 2003.
- H. Keller: *Unconventional isotope effects in cuprate high-temperature superconductors*  
University of Geneva, DPMC, Geneva, Switzerland, 25 March, 2004.
- R. Khasanov: *Direct observation of the oxygen isotope effect on the in-plane magnetic field penetration depth in optimally doped  $YBa_2Cu_3O_{7-\delta}$*   
2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.



- M. Mali: *Temperature dependence of plane copper NQR linewidth in the  $YBa_2Cu_4O_8$  superconductor*  
Specialized Colloque AMPERE on NMR and EPR Broad-Line Solids, Portoroz, Slovenia, 8-12 September, 2003.
- J. Roos: *Broad-line Cu-NQR studies in cuprate high-temperature superconductors*  
Specialized Colloque AMPERE on NMR and EPR Broad-Line Solids, Portoroz, Slovenia, 8-12 September, 2003.
- T. Schneider: *Probing Inhomogeneities in Type II Superconductors by Means of Thermal Fluctuations, Magnetic Fields, and Isotope Effects*  
Dynamic Inhomogeneities in Complex Oxides, Bled, Slovenia, 14-20 June, 2003.
- T. Schneider: *The mystery of superconductivity in the cuprates evinced by London penetration depths measurements*  
International School of Physics, Enrico Fermi Course CLV, The Physics of Complex Systems (new advances and perspectives), Varenna, Italy, 1-11 July, 2003.
- T. Schneider: *Granular superconductivity in the cuprates evinced by finite size effects in the specific heat and London penetration depths*  
Nato Advance Research Workshop on *Symmetry and Heterogeneity in High-Temperature Superconductors*, Erice, Italy, 4-10 October, 2003.
- T. Schneider: *Evidence for granularity, anisotropy and lattice distortions in cuprate superconductors and their implications*  
Nato Advance Research Workshop on *Symmetry and Heterogeneity in High-Temperature Superconductors*, Erice, Italy, 4-10 October, 2003.
- A. Shengelaya: *Microscopic phase separation driven by elastic interactions in  $La_{2-x}Sr_xCuO_4$  as revealed by electron paramagnetic resonance*  
Dynamic Inhomogeneities in Complex Oxides, Bled, Slovenia, 14-20 June, 2003.
- A. Shengelaya: *A metallic phase in very low doped  $La_{2-x}Sr_xCuO_4$  observed by electron paramagnetic resonance*  
2003 Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 29 - October 1, 2003.

### 14.3 Research group of Prof. P. F. Meier

#### Articles

- *Synthesis of one monolayer of hexagonal boron nitride on Ni(111) from B-trichloroborazine (CIBNH)<sub>3</sub>*  
W. Auwärter, H.U. Suter, H. Sachdev and T. Greber, *Chemistry of Materials B* **326**, 329 (2003).
- *Dynamics of human sleep EEG*  
E. Olbrich and P. Achermann, *Neurocomputing* **52-54**, 857 (2003).
- *Nonlinearity and nonstationarity in human sleep EEG data*  
E. Olbrich, P.F. Meier and P. Achermann, *Sleep* **26**, A394 (2003).

- *Influence of lattice parameter scaling on local electronic and magnetic properties in  $La_2CuO_4$*   
S. Renold and P.F. Meier, J. Supercond. Inc. Nov. Magn. **16**, 483 (2003).
- *Nuclear magnetic resonance chemical shifts and paramagnetic field modifications in  $La_2CuO_4$*   
S. Renold, T. Heine, J. Weber, and P.F. Meier, Phys. Rev. B **67**, 024501 (2003).
- *Dimensional complexity and spectral properties of the human sleep EEG*  
Y. Shen, E. Olbrich, P. Achermann, and P.F. Meier, Clin. Neurophysiol. **114**, 199 (2003).
- *Charge distribution in  $La_{2-x}Sr_xCuO_4$*   
E. P. Stoll, T. A. Claxton, and P.F. Meier, Int. J. of Mod. Phys. B **17**, 3329 (2003).
- *On the distribution of intrinsic holes in cuprates*  
E.P. Stoll, T.A. Claxton, and P.F. Meier, J. Phys.: Condens. Matter **15**, 7881 (2003).
- *Muon sites and hyperfine fields in  $La_2CuO_4$*   
H. U. Suter, E.P. Stoll, and P.F. Meier, Physica B: Condensed Matter **326**, 329 (2003).
- *Percolation, fractal behavior and high- $T_c$  superconductivity*  
E.P. Stoll, J. Supercond. Inc. Nov. Magn. **17**, 79 (2004).

### Diploma and PhD theses

- *First-principles studies of local electronic and magnetic properties in cuprates*  
S. Renold, PhD-thesis, University of Zurich (2004).

### Articles in press

- *Oscillatory events in the human sleep EEG—detection and properties*  
E. Olbrich and P. Achermann, Neurocomputing, in Press, (2004).
- *From next nearest neighbour site percolation to continuum percolation: Application to high- $T_c$  superconductors*  
E. P. Stoll, Int. J. of Mod. Phys. C **15**, in Press (2004).

### Invited Lectures

- P.F. Meier: *Re-assessment of the interpretation of NMR and  $\mu$ SR data on cuprate superconductors*  
NATO Advanced Research Workshop on New Challenges in Superconductivity, University of Miami, 16.01.04.
- E. Olbrich: *Nonstationarity and nonlinearity in human sleep EEG data*  
Kolloquium: Aktuelle Themen der Schlafforschung, Institut für Pharmakologie und Toxikologie, Universität Zürich, 7.01.03.
- E. Olbrich: *Oscillatory events in the human sleep EEG*  
Computational Neuroscience Meeting 2003, Alicante, 06.07.03.

- S. Renold: *NMR Chemical shifts and paramagnetic field modifications in  $La_2CuO_4$*   
MANEP-Conference, Les Diablerets 29.09.03.
- E. P. Stoll: *Inhomogeneities and percolation in complex high- $T_c$  superconductors*  
Conference: Dynamic inhomogeneities in complex matter, Bled, Slovenia, 14-20.06.03.

#### Conference related contributions

- S. Renold: *NMR chemical shifts and paramagnetic field modifications in  $La_2CuO_4$*   
2003 March Meeting of the American Physical Society, Austin, TX, 07.03.03.
- S. Renold: *Influence of lattice parameters on local electronic and magnetic properties in  $La_2CuO_4$  and  $Sr_2CuO_2Cl_2$*   
2003 March Meeting of the American Physical Society, Austin, TX, 07.03.03.
- S. Renold: *NMR chemical shifts and paramagnetic field modifications in  $La_2CuO_4$*   
Annual meeting of the Swiss Physical Society, Basel 20.-21.03.03.
- E. P. Stoll: *Percolation, fractal behaviour and high- $T_c$  superconductivity*  
Annual meeting of the Swiss Physical Society, Basel 20.-21.03.03.

### 14.4 Research group of Prof. J. Osterwalder

#### Articles

- *The electronic structure of a surfactant layer: Pb/Cu(111)*  
F. Baumberger, A. Tamai, M. Muntwiler, T. Greber, J. Osterwalder,  
Surf. Sci. 532-535, 82-86 (2003).
- *Optical recognition of atomic steps on surfaces*  
F. Baumberger, Th. Herrmann, A. Kara, S. Stolbov, N. Esser, T. S. Rahman, J. Osterwalder, W.  
Richter, T. Greber, Phys.Rev.Lett.90, 177402-1-4 (2003).
- *Density functional theory investigation of the geometric and spintronic structure of h-BN/Ni(111)  
in view of photoemission and STM experiments*  
G. B. Grad, P. Blaha, K. Schwarz, W. Auwärter, T. Greber, Phys. Rev. B 68, 085404-1-7 (2003).
- *Defect lines and two-domain structure of hexagonal boron nitride films on Ni(111)*  
W. Auwärter, M. Muntwiler, J. Osterwalder, T. Greber, Surf. Sci. 545, L735-L740 (2003).
- *Reinvestigation of the band structure of the Si(111)5x2-Au surface*  
I. Matsuda, M. Hengsberger, F. Baumberger, T. Greber, H. W. Yeom, J. Osterwalder,  
Phys. Rev. B 68, 195319-1-7 (2003).
- *Growth morphologies and defect structure in hexagonal boron nitride films on Ni(111): a com-  
bined STM and XPD study*  
J. Osterwalder, W. Auwärter, M. Muntwiler, T. Greber,  
e-J. Surf. Sci. Nanotech. 1, 124-129 (2003).

- *Remarks on the Generalized Solution of Electron Diffusion*  
A. Dolocan, Int. J. of Mod. Phys. B 17, 1043-1069 (2003).
- *X-Ray Propagation in Tapered Planar Waveguide*  
A. Dolocan, J.F. Van Der Veen, Int. J. of Mod. Phys. B 17, 2213-2257 (2003).
- *Step-lattice-induced band-gap opening at the Fermi level*  
F. Baumberger, M. Hengsberger, M. Muntwiler, M. Shi, J. Krempasky, L. Patthey, J. Osterwalder, T. Greber, Phys.Rev.Lett.92, 016803-1-4 (2004).
- *Boron nitride nanomesh*  
M. Corso, W. Auwärter, M. Muntwiler, A. Tamai, T. Greber, J. Osterwalder, Science 303, 217-220 (2004).
- *Synthesis of one monolayer of hexagonal boron nitride on Ni(111) from B-Trichloroborazine (ClBNH)<sub>3</sub>*  
W. Auwärter, H. U. Suter, H. Sachdev, T. Greber, Chem. Mater. 16, 343-345 (2004).

#### Book chapter:

- *Structural effects in XPS and AES: Diffraction*  
J. Osterwalder, in *Surface Analysis by Electron Spectroscopy*, D. Briggs and J. Grant, eds., Surface Spectra Ltd and IM Publications (2003), p. 557-585.

#### Articles in press

- *Spin- and angle-resolved photoemission spectroscopy study of the Au(111) Shockley surface state*  
M. Muntwiler, M. Hoesch, V. N. Petrov, M. Hengsberger, L. Patthey, M. Shi, M. Falub, T. Greber, J. Osterwalder, J. Electron Spectrosc. Relat. Phenom. (in press).
- *One-dimensional chains of C<sub>60</sub> molecules on Cu(221)*  
A. Tamai, W. Auwärter, C. Cepek, F. Baumberger, T. Greber, J. Osterwalder, Surf. Sci. (in press).
- *Localization of surface states in disordered step lattices*  
F. Baumberger, M. Hengsberger, M. Muntwiler, M. Shi, J. Krempasky, L. Patthey, J. Osterwalder, T. Greber, Phys.Rev.Lett.(in press).

#### Diploma and PhD theses

- *Extending the ESCALAB measurement capabilities and studying fundamentals for the spintronic candidate Mn on Ge(001)*  
Thomas Gresch, Diploma Thesis, Physik-Institut, Universität Zürich, 2003.
- *Nanostructured magnetic interfaces: case studies and new experiment control software*  
M. Muntwiler, Ph. D. Thesis, Physik-Institut, Universität Zürich, 2004.

**Contributed conference presentations**

- *Possible step lattice stabilisation by surface states (Poster)*  
T. Greber, Symposium on Surface Science, La Plagne, France, 1.4.03.
- *Development of a low-energy electron gun for pump-probe experiments (Poster)*  
M. Hengsberger, Workshop on Ultrafast Science with X-Rays and Electrons, Montreux, 9./10.4.03.
- *Spin-resolved Fermi surface mapping*  
M. Hoesch, Suga-Group Seminar, Osaka University, Japan, 13.5.03.
- *Ultraviolet photoelectron diffraction*  
M. Hoesch, Suga-Group Seminar, Osaka University, Japan, 10.6.03.
- *Angle- and spin-resolved photoelectron spectroscopy of the Au(111) surface state band (Poster)*  
M. Muntwiler, ICESS-9 Conference, Uppsala, Sweden, 30.6.03.
- *Growth and properties of epitaxial Cr-doped TiO<sub>2</sub> anatase and rutile*  
J. Osterwalder, Spintronics Workshop, Department of Physics, University of Washington, Seattle, WA, USA, 9.7.03.
- *Spin- and angle-resolved photoelectron spectroscopy of the surface state on Au(111)*  
M. Hoesch, 22nd European Conference on Surface Science, Prag, Czech Republic, 9.9.03.
- *One-dimensional chains of C<sub>60</sub> molecules on Cu(221)*  
A. Tamai, 22nd European Conference on Surface Science, Prag, Czech Republic, 9.9.03
- *Boron nitride nanomesh (Poster)*  
M. Corso, 20th Annual Meeting of the SAOG (Schweizerische Arbeitsgemeinschaft für Oberflächen und Grenzflächen), Fribourg, 23.1.04.
- *C<sub>60</sub> on h-BN/Ni(111): a molecular switch for electrons?*  
T. Greber, Symposium on Surface Science, St. Anton, Austria, 3.3.04.
- *Ultrafast space-charge dynamics with low-energy electron pulses*  
A. Dolocan, SPS Jahrestagung, Neuchatel, 3.3.04.
- *Boron nitride nanomesh*  
M. Corso, SPS Jahrestagung, Neuchatel, 4.3.04.
- *Doping dependent orientation of C<sub>60</sub> molecules on Ag(111)*  
T. Greber, March Meeting of the American Physical Society, Montreal, Canada, 23.3.04.
- *One-dimensional C<sub>60</sub> chains: molecular arrangement and electronic properties*  
A. Tamai, March Meeting of the American Physical Society, Montreal, Canada, 23.3.04.
- *Metal-insulator transition of monolayer C<sub>60</sub> on a h-BN/Ni tunnelling junction*  
M. Muntwiler, March Meeting of the American Physical Society, Montreal, Canada, 23.3.04.
- *Nanomesh: self organization of boron nitride on Rh(111)*  
T. Greber, March Meeting of the American Physical Society, Montreal, Canada, 25.3.04.

**Invited lectures**

- M. Hoesch: *Spin-resolved Fermi surface mapping*  
NAIST Seminar, Nara Institute of Science and Technology, Nara, Japan, 4.6.03.
- J. Osterwalder: *One monolayer of hexagonal boron nitride on Ni(111): a model case for a magnetic metal-insulator-interface*  
Seminar, Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland, WA, USA, 9.6.03.
- T. Greber: *h-BN/Ni(111): an atomically sharp interface*  
DFG Forschergruppenseminar "Ferromagnet-Halbleiter-Nanostrukturen", Regensburg, 27.6.03.
- M. Hoesch: *Spin-resolved Fermi surface mapping*  
HiSOR Seminar, Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan, 8.7.03.
- M. Hoesch: *Spin-resolved Fermi surface mapping*  
Hasegawa-Group Seminar, University of Tokyo, Japan, 11.7.03.
- T. Greber: *How steps influence the electronic structure and vice versa*  
Seminar, Fritz-Haber-Institut, Berlin, 15.7.03.
- J. Osterwalder: *Spin-resolved Fermi surface mapping*  
Seminar, Advanced Light Source, Lawrence Berkeley Laboratory, Berkeley, CA, USA, 2.10.03.
- J. Osterwalder: *C<sub>60</sub> fullerene monolayers: molecular arrangement, orientation and electronic structure*  
Shen-Group Seminar, Department of Applied Physics, Stanford University, Stanford, CA, USA, 2.10.03.
- J. Osterwalder: *Growth morphologies and defect structure in h-BN films on Ni(111): a combined STM and XPD study*  
4th International Conference on Atomic Level Characterization of New Materials and Devices, Kauai, HI, USA, 9.10.03.
- T. Greber: *Exploring the structural changes of not so small molecules on surfaces: from photoelectron diffraction towards near-node photoelectron holography*  
Swiss Light Source Users' Meeting, PSI Villigen, 30.10.03.
- M. Hoesch: *Spin-resolved Fermi surface mapping: the spin-orbit split surface state on Au(111)*  
Swiss Light Source Users' Meeting, PSI Villigen, 31.10.03.
- T. Greber: *Molecular valves for electrons: C<sub>60</sub>/h-BN/Ni(111)*  
Seminar, Physik, Freie Universität Berlin, 3.11.03.
- J. Osterwalder: *Some tricks in photoelectron diffraction experiments for structural investigations at surfaces*  
50th American Vacuum Society Meeting, Baltimore, MD, USA, 4.11.03.
- M. Hoesch: *Spin-resolved Fermi surface mapping: the Fermi surface of bulk and ultrathin nickel*  
SRSES2003 Conference, Hiroshima, Japan, 19.11.03.
- T. Greber: *Steps: pivots on surfaces*  
High T<sub>c</sub> workshop on novel materials and superconductivity, Plannersalm, Austria, 27.2.04.

- J. Osterwalder: *About spin structures on Au surfaces, molecular chains and nanomeses*  
Seminar, Fritz-Haber-Institut, Berlin, 1.3.04.
- J. Osterwalder: *Applications of synchrotron radiation techniques to surface science problems*  
4 hours of Lectures, HERCULES School 2004, Trieste, Italy, 18./19.3.04.

#### 14.5 Research group of Prof. U. Straumann, (for H1 publications see Sec.14.6)

##### Articles

- *The CIP2K First-Level Trigger System at the H1 Experiment at HERA*  
M. Urban, J. Becker, S. Schmitt, U. Straumann, IEEE Trans.Nucl.Sci. 50:903-908, 2003.
- *A vertex detector for the future linear collider*  
Stefania Xella Hansen, Nucl.Instr.Meth.A 511 (2003) 229-234.
- *Flavour tagging at the future linear collider*  
Stefania Xella Hansen, Nucl.Instr.Meth.A 501 (2003) 106-110.
- *An orthotropic Magnesium-Carbon Composite as Lighweight Heat-guide Material with High Specific Stiffness and Radiation Transparency*  
S. Vaucher, O. Beffort, J. Kübler and F. Lehner, Adv. Eng. Mater. 5 (2003) 669-672.
- *Search for 3- and 4-Body Decays of the Scalar Top Quark in  $p\bar{p}$  Collisions at  $\sqrt{s}=1.8$  TeV*  
V. M. Abazov *et al.* [D0 Collaboration], Phys.Lett.B **581** (2004) 147-155.
- *Observation of diffractively produced W and Z Bosons in  $p\bar{p}$  collisions at  $\sqrt{s}=1800$  GeV*  
V. M. Abazov *et al.* [D0 Collaboration], Phys.Lett.B **574** (2003) 169-179.
- *Search for Large Extra Dimensions in the Monojet + Missing E(T) Channel at DØ*  
V. M. Abazov *et al.* [D0 Collaboration], Phys.Rev.Lett.**90** (2003) 251802.
- *Multiple Jet Production at low transverse energies in  $p\bar{p}$  collisions at  $\sqrt{s}=1.8$  TeV*  
V. M. Abazov *et al.* [D0 Collaboration], Phys.Rev.D **67** (2003) 052001.
- *$t\bar{t}$  Production cross section in  $p\bar{p}$  collisions at  $\sqrt{s}=1.8$  TeV*  
V. M. Abazov *et al.* [D0 Collaboration], Phys.Rev.D **67** (2003) 012004.
- *The LHCb Silicon Inner Tracker*  
F. Lehner, Nucl.Instr.Meth.A 501 (2003) 126-130.
- *The LHCb Silicon Inner Tracker*  
F. Lehner, Nucl.Instr.Meth.A 511 (2003) 43-47.

##### Diploma and PhD thesis

- *Simulation und Messung von Silizium-Streifen-Detektoren*  
Stefan Heule, Diplomarbeit, Physik-Institut, Universität Zürich, 2003.

- *The new CIP2k z-Vertex Trigger for the H1 Experiment at HERA*  
Max Christoph Urban, PhD Thesis, Physik-Insitut, Universität Zürich, 2004.
- *A Measurement of the QED-Compton Cross-Section in Electron-Proton Scattering with the H1 Experiment at HERA*  
Nicolas Keller, PhD Thesis, Physik-Insitut, Universität Zürich, 2004.
- *Measurement of the Charged Current Cross Section in Positron-Proton Collisions at HERA*  
Nicole Werner, PhD Thesis, Physik-Insitut, Universität Zürich, 2004.

### Conference contributions

- Nicole Werner: *Measurements of proton structure functions,  $\alpha(s)$  and parton distribution functions at HERA*  
Talk on behalf of the H1 and ZEUS collaborations, 38th Rencontres de Moriond on QCD and High-Energy Hadronic Interactions, Les Arcs, Savoie, France, 22-29.03.2003. hep-ex/0305109.
- J. Becker *et al.*: *The first level trigger CIP2k for the H1 Experiment at HERA*  
8th Topical Seminar on Innovative Particle and Radiation Detectors, Siena, Italy, 21-24 Oct 2002, Nucl. Phys. Proc. Suppl. 125:277-281, 2003.
- Y. Ermoline: *LHCb Silicon Tracker infrastructure*  
Poster at the 9th Pisa Meeting on Advanced Detectors, La Biodola, Isola d'Elba, Italy, 25-31.05.2003.
- Peter Fierlinger: *Geant4 Simulations for Ultracold Neutron Experiments*  
Int. Conf. on Ultracold and Cold Neutrons Physics & Sources, St.Petersburg, Russia, June 2003.
- U. Straumann: *Silicon Strip Detectors with long strips and fast signal shaping for LHCb*  
talk presented at Imaging 2003, June 27, 2003, Stockholm, Sweden.
- F. Lehner, C. Lois, P. Vazquez:  
*Caracterizacion de 15 detectores de micropistas de Silicio (5 GLAST2000, 5 OB2 CMS y 5 Hamamatsu LHCb Multi-Geometry) para la estacion TT del experimento LHCb*  
XXIX Reunion Bienal de la Real Sociedad Espanola de Fisica, Madrid (Spain), July 7-11, 2003.
- M. Needham: *The LHCb Silicon Tracker*  
Int. Conf. on Large Scale Applications and Radiation Hardness of Semiconductor Detectors, September 30 - October 1, 2003, Firenze, Italy.
- F. Lehner: *Investigation of Radiation Damage on Silicon Detectors for the D0 Run IIb Upgrade*  
Int. Conf. on Large Scale Applications and Radiation Hardness of Semiconductor Detectors, September 30 - October 1, 2003, Firenze, Italy.
- A. Vollhardt: *The LHCb silicon tracker*  
Nuclear science symposium and medical imaging conference (IEEE), Portland, USA, October 19-25, 2003.
- M. Agari and O. Steinkamp: *Design of the LHCb Silicon Tracker*  
poster at the 10th Vienna Conference on Instrumentation (VCI 2004), February 16 - 21, 2004, Vienna, Austria.



**Invited lectures and seminar talks**

- Phillip Sievers: *The LHCb Silicon Inner Tracker*  
High Energy Physics Seminar, UCLA, Los Angeles, 29.01.2003.
- F. Lehner: *The Status of LHCb and its Inner Tracker detector*  
Experimental Particle Physics Seminar at Kansas State University, March 10, 2003, Manhattan, Kansas, USA.
- Stefan Schmitt: *H1 status and prospects*  
DESY-PRC open session, 30. Oktober 2003, [http://www.desy.de/~sschmitt/prc\\_oct\\_2003.pdf.gz](http://www.desy.de/~sschmitt/prc_oct_2003.pdf.gz).
- Stefan Schmitt: *Lepton beam polarisation for the HERA experiments ZEUS and H1*  
Seminar at MPI München, 9. Dezember 2003, [http://www.desy.de/~sschmitt/pol26\\_mpi.pdf](http://www.desy.de/~sschmitt/pol26_mpi.pdf).

**Collaboration notes and technical reports**

- *LHCb Reoptimized Detector Design and Performance*  
Technical Design Report, LHCb Collaboration,  
LHCb TDR 9, CERN/LHCC 2003-030, 9. September 2003.
- *Design of the LHCb Silicon Tracker*  
M. Agari *et al.*, LHCb Note 2004-010.
- *Simulation of Signal Generation in Silicon Micro-strip Detectors for the LHCb Silicon Tracker of the LHCb Experiment*  
St. Heule and F. Lehner, LHCb Note 2003-159.
- *Studies of the Beetle 1.2 Pipeline Homogeneity*  
M. Agari *et al.*, LHCb Note 2003-155.
- *The LHCb Silicon Tracker*  
A. Vollhardt, LHCb Note 2003-143.
- *The LHCb Silicon Tracker*  
M. Needham, LHCb Note 2003-142.
- *Layout and Expected Performance of the LHCb TT Station*  
J. Gassner, M. Needham, O. Steinkamp, LHCb Note 2003-140.
- *Prototype for an optical 12 input receiver card for the LHCb TELL1 board*  
G. Haefeli, U. Uwer, A. Vollhardt, D. Wiedner, LHCb Note 2003-137.
- *Characterization and Sample Testing of the LHC4913 Positive Voltage Regulator for the LHCb Silicon Tracker*  
A. Gafner and A. Vollhardt, LHCb Note 2003-128.
- *Test-Beam Measurements on Prototype Ladders for the LHCb TT Station*  
M. Agari *et al.*, LHCb Note 2003-082.
- *Capacitance Measurements on Silicon Micro-Strip Detectors for the TT Station of the LHCb Experiment*  
J. Gassner *et al.*, LHCb Note 2003-081.

- *Measurements of Prototype Ladders for the Silicon Tracker with Laser*  
R. Bernhard *et al.*, LHCb Note 2003-075.
- *Neutron Irradiation Results for the LHCb Silicon Tracker Data Readout System Components*  
A. Vollhardt, LHCb Note 2003-049.
- *A Prototype for the LHCb Silicon Tracker Data Readout System*  
A. Vollhardt, LHCb Note 2003-045.
- *Tracking Performance and Robustness Tests*  
M. Needham, LHCb Note 2003-020.
- *Silicon Tracker Simulation Performance*  
M. Needham, LHCb Note 2003-015.

## 14.6 H1 publications by the groups of Straumann and Truöl

### Articles

- *Isolated Electrons and Muons in Events with Missing Transverse Momentum at HERA*  
H1-Collaboration, V. Andreev *et al.*,  
DESY 02 – 224, hep-ex/0301030, Phys.Lett.**B561** (2003), 241 - 257.
- *Measurement of Inclusive Jet Cross Sections in Photoproduction at HERA*  
H1-Collaboration, C. Adloff *et al.*,  
DESY 02 – 225, hep-ex/0302034, Eur.Phys.J.**C29** (2003), 497 - 513.
- *Measurement and QCD Analysis of Neutral and Charged Current Cross Sections at HERA*  
H1-Collaboration, C. Adloff *et al.*,  
DESY 03 – 038, hep-ex/0304003, Eur.Phys.J.**C30** (2003), 1 - 32.
- *Search for New Physics in  $e^\pm q$  Contact Interactions*  
H1-Collaboration, C. Adloff *et al.*,  
DESY 03 – 052, hep-ex/0305015, Phys.Lett.**B568** (2003), 35 - 47.
- *Diffractive Photoproduction of  $J/\Psi$  Mesons with Large Momentum Transfer at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 061, hep-ex/0306013, Phys.Lett.**B568** (2003), 205 - 218.
- *Multi-electron Production at High Transverse Momentum in  $ep$  Collisions at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 082, hep-ex/0307015, Eur.Phys.J.**C31** (2003), 17 - 29.
- *Search for Single Top Quark Production in  $e^\pm p$  Collisions at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 132, hep-ex/0310032, Eur.Phys.J.**C33** (2004), 9 - 22.
- *Muon Pair Production in  $ep$  Collisions at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 159, hep-ex/0311015, Phys.Lett.**B583** (2004), 28 - 40.

- *Inclusive Dijet Production at Low Bjorken- $x$  in Deep Inelastic Scattering*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 160, hep-ex/0310019, Eur.Phys.J.**C33** (2004), 477 - 493.
- *Observation of a Narrow Anti-Charmed Baryon State*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 04 – 038, hep-ex/0403017, Phys.Lett.**B588** (2004), 17 - 28.

### Articles in print

- *Measurement of Dijet Production at Low  $Q^2$  at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 03 – 206, hep-ex/0401010, Eur.Phys.J.**C** (2004), in print.
- *Search for Squark Production in R-Parity Violating Supersymmetry at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 04 – 025, hep-ex/0403027, Eur.Phys.J.**C** (2004), in print.
- *Measurement of Anti-Deuteron Photoproduction and a Search for Heavy Stable Charged Particles in at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 04 – 032, hep-ex/0403056, Eur.Phys.J.**C** (2004), in print.
- *Forward  $\pi^0$  Production and Associated Transverse Energy Flow in Deep-Inelastic Scattering at HERA*  
H1-Collaboration, A. Aktas *et al.*,  
DESY 04 – 051, hep-ex/0404009, Eur.Phys.J.**C** (2004), in print.

### H1-collaboration (1.5.2004)

A. Aktas, V. Andreev, T. Anthonis, A. Asmone, A. Babaev, S. Backovic, J. Bähr, A. Baghdasaryan, P. Baranov, E. Barrelet, W. Bartel, S. Baudrand, S. Baumgartner, J. Becker, M. Beckingham, O. Behnke, O. Behrendt, A. Belousov, Ch. Berger, N. Berger, T. Berndt, J.C. Bizot, J. Böhme, M.-O. Boenig, V. Boudry, J. Bracinik, G. Brandt, V. Brisson, H.-B. Bröker, D.P. Brown, D. Bruncko, F.W. Büsler, A. Bunyatyan, G. Buschhorn, L. Bystritskaya, A.J. Campbell, S. Caron, F. Cassol-Brunner, K. Cerny, V. Chekelian, J.G. Contreras, Y.R. Coppens, J.A. Coughlan, B.E. Cox, G. Cozzika, J. Cvach, J.B. Dainton, W.D. Dau, K. Daum, B. Delcourt, R. Demirchyan, A. De Roeck, K. Desch, E.A. De Wolf, C. Diaconu, J. Dingfelder, V. Dodonov, A. Dubak, C. Duprel, G. Eckerlin, V. Efremenko, S. Egli, R. Eichler, F. Eisele, M. Ellerbrock, E. Elsen, M. Erdmann, W. Erdmann, S. Essenov, P.J.W. Faulkner, L. Favart, A. Fedotov, R. Felst, J. Ferencei, L. Finke, M. Fleischer, P. Fleischmann, Y.H. Fleming, G. Flucke, G. Flügge, A. Fomenko, I. Foresti, J. Formánek, G. Franke, G. Frising, T. Frisson, E. Gabathuler, K. Gabathuler, E. Garutti, J. Garvey, J. Gayler, R. Gerhards, C. Gerlich, S. Ghazaryan, S. Ginzburgskaya, I. Glushkov, L. Goerlich, M. Goettlich, N. Gogitidze, S. Gorbounov, C. Goyon, C. Grab, H. Grässler, T. Greenshaw, M. Gregori, G. Grindhammer, C. Gwilliam, D. Haidt, L. Hajduk, J. Haller, M. Hansson, G. Heinzlmann, R.C.W. Henderson, H. Henschel, O. Henshaw, G. Herrera, I. Herynek, R.-D. Heuer, M. Hildebrandt, K.H. Hiller, P. Höting, D. Hoffmann, R. Horisberger, A. Hovhannisyanyan, M. Ibbotson, M. Ismail,

M. Jacquet, L. Janauschek, X. Janssen, V. Jemanov, L. Jönsson, D.P. Johnson, H. Jung, D. Kant, M. Kapichine, M. Karlsson, J. Katzy, N. Keller, I.R. Kenyon, C. Kiesling, M. Klein, C. Kleinwort, T. Klimkovich, T. Kluge, G. Knies, A. Knutsson, V. Korbel, P. Kostka, R. Koutouev, A. Kropivnitskaya, J. Kroseberg, K. Krüger, J. Kückens, M.P.J. Landon, W. Lange, T. Laštovička, P. Laycock, A. Lebedev, B. Leißner, R. Lemrani, V. Lendermann, S. Levonian, L. Lindfeld, K. Lipka, B. List, E. Lobodzinska, N. Loktionova, R. Lopez-Fernandez, V. Lubimov, H. Lueders, D. Lüke, T. Lux, L. Lytkin, A. Makankine, N. Malden, E. Malinovski, S. Mangano, P. Marage, J. Marks, R. Marshall, M. Martisikova, H.-U. Martyn, S.J. Maxfield, D. Meer, A. Mehta, K. Meier, A.B. Meyer, H. Meyer, J. Meyer, S. Mikocki, I. Milcewicz-Mika, D. Milstead, A. Mohamed, F. Moreau, A. Morozov, J.V. Morris, M.U. Mozer, K. Müller, P. Mur'in, V. Nagovizin, K. Nankov, B. Naroska, J. Naumann, Th. Naumann, P.R. Newman, C. Niebuhr, A. Nikiforov, D. Nikitin, G. Nowak, M. Nozicka, R. Oganezov, B. Olivier, J.E. Olsson, D. Ozerov, C. Pascaud, G.D. Patel, M. Peez, E. Perez, D. Perez-Astudillo, A. Perieanu, A. Petrukhin, D. Pitzl, R. Plačákytė, R. Pöschl, B. Porthault, B. Povh, N. Raicevic, P. Reimer, B. Reisert, A. Rimmer, C. Risler, E. Rizvi, P. Robmann, B. Roland, R. Roosen, A. Rostovtsev, Z. Rurikova, S. Rusakov, F. Salvaire, D.P.C. Sankey, E. Sauvan, S. Schätzkel, J. Scheins, F.-P. Schilling, S. Schmidt, S. Schmitt, C. Schmitz, M. Schneider, L. Schoeffel, A. Schöning, V. Schröder, H.-C. Schultz-Coulon, C. Schwanenberger, K. Sedlák, F. Sefkow, I. Sheviakov, L.N. Shtarkov, Y. Sirois, T. Sloan, P. Smirnov, Y. Soloviev, D. South, V. Spaskov, A. Specka, B. Stella, J. Stiewe, I. Strauch, U. Straumann, V. Tchoulakov, G. Thompson, P.D. Thompson, F. Tomasz, D. Traynor, P. Truöl, G. Tsipolitis, I. Tsurin, J. Turnau, E. Tzamariudaki, A. Uraev, M. Urban, A. Usik, D. Utkin, S. Valkár, A. Valkárová, C. Vallée, P. Van Mechelen, N. VanRemortel, A. VargasTrevino, Y. Vazdik, C. Veelken, A. Vest, S. Vinokurova, V. Volchinski, B. Vujicic, K. Wacker, J. Wagner, G. Weber, R. Weber, D. Wegener, C. Werner, N. Werner, M. Wessels, B. Wessling, C. Wigmore, G.-G. Winter, Ch. Wissing, E.-E. Woehrling, R. Wolf, E. Wunsch, S. Xella, W. Yan, V. Yeganov, J. Žáček, J. Zálešák, Z. Zhang, A. Zhelezov, A. Zhokin, J. Zimmermann, H. Zohrabyan, and F. Zomer

#### 14.7 Research group of Prof. P. Truöl (for H1 publications see Sec.14.6)

##### Articles

- *J/Ψ Production via  $\chi_c$  Decays in 920 GeV pA Interactions*  
HERA-B Collaboration, I. Abt *et al.*,  
DESY 02 – 187, hep-ex/0211033, Phys.Lett.**B561** (2003), 61 - 72.
- *Inclusive  $V^0$  Production Cross Section from 920 GeV Fixed Target Proton-Nucleus Collisions*  
HERA-B Collaboration, I. Abt *et al.*,  
DESY 02 – 213, hep-ex/0212040, Eur.Phys.J.**C29** (2003), 181 - 190.
- *High Statistics Measurement of  $K_{e4}$  Decay Properties*  
E865-Collaboration, S. Pislak *et al.*,  
hep-ex/0301040, Phys.Rev.**D67** (2003), 072004-1 - 072004-15.
- *New, High Statistics Measurement of the  $K^+ \rightarrow \pi^0 e^+ \nu_e$  ( $K_{e3}$ ) Branching Ratio*  
E865-Collaboration, A. Sher *et al.*,  
hep-ex/0305042, Phys.Rev.Lett.**91** (2003), 261802-1 - 261802-4.
- *Summary WG2 part 2: rare muon decays*  
A. van der Schaaf, Proc. NuFACT'01, Tsukuba, Japan (2001), Nucl.Instr.Meth.A503 (2003) 240.

- *$\mu e$  Conversion experiments: status and prospects*  
A. van der Schaaf, Proc. NuFACT'01, Tsukuba, Japan (2001), Nucl.Instr.Meth.A503 (2003) 281.
- *SINDRUM II*  
A. van der Schaaf, Proc. NuFACT'02, London, U.K. (2002), Journal of Physics G29 (2003) 1503.
- *Muon physics at a neutrino factory*  
A. van der Schaaf, Journal of Physics G29 (2003) 2755.

### Report in print

- *ECFA studies of a European neutrino factory complex*  
A. Blondel, J. Ellis, F. Dydak, J.J. Gomez-Cadenas, G. Giudice, A. van der Schaaf, M. Mangano, G. Buchalla, P. Janot, H. Haseroth, H. Ravn, H. Schonauer, R. Garoby, A. Lombardi, CERN Yellow Report, 2004.

### Diploma and PhD Theses

- *An improved limit on the decay  $K^+ \rightarrow \pi^+ \mu^+ e^-$*   
Aleksey Sher, PhD Thesis, Universität Zürich, 2003.
- *Entwicklung von Szintillationszählerprototypen für das KOPIO Experiment*  
Simon O. Scheu, Diploma Thesis, Universität Zürich, December 2003.

### E865-collaboration

R. Appel, G.S. Atoyan, B. Bassaleck, D.R. Bergman, N. Cheung, S. Dhawan, H. Do, J. Egger, S. Eilerts, W.D. Herold, V.V. Issakov, H. Kaspar, D. Kraus, D. Lazarus, P. Lichard, J. Lowe, J. Lozano, H. Ma, W. Majid, S. Pislak, A.A. Poblaguev, A. Sher, Aleksey Sher, P. Rehak, J.A. Thompson, P. Truöl, and M.E. Zeller