

MaNEP
SWITZERLAND

e-Newsletter

of the National Center of Competence in Research on
Materials with Novel Electronic Properties / NCCR MaNEP



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Nr. 18 / February 2009

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Editorial / Fast forward to the third phase !



By Prof.
Oystein
Fischer

MaNEP is on
its way to the
third phase

2009 – 2013. We have received green light from the SNSF, under the condition that the full proposal is as good as the pre-proposal we submitted last spring. Two months remain until the deadline, and I am pleased to see that all groups are actively participating in shaping MaNEP's future. As many of you know, the network will be reinforced and synergies between the Swiss groups will be stimulated. I really look forward to collaborating with all of you in this context.

In January we had two important events : the internal workshops, which mainly involved the group leaders, and the winter school in Saas Fee with over 70 students participating. Both gave a broad view on MaNEP's activities and went very well. The organisers deserve many thanks for their excellent work.

Over the last months, MaNEP has renewed its managerial staff. After being our administrative manager from the start, Isabelle Bretton decided to enter a new stage in her career. I would like to express my warmest thanks for her excellent work over those years.

To replace her, we have hired Mrs Marie Bagnoud. The team has also been completed with Mrs Sophie Griessen, who will work as an assistant to the director. I extend a warm welcome to both of them...

I look forward to an exciting phase III. And please note that I shall not disappear following my appointment as guest professor in Sweden ! On the contrary, I plan to continue my activities for MaNEP just as before, and hope to create stimulating new contacts between the Chalmers Institute and our network.

Creation of a MaNEP Alumni Group

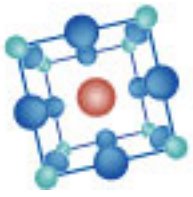


With the aim to connect all the scientists who have contributed to MaNEP over the last eight years (Professors, PhDs and Post-docs), we are launching an Alumni Group using LinkedIn (www.linkedin.com).

The launching takes place with an e-mail where alumnis are invited to (create a profile on LinkedIn and) apply to the "MaNEP Alumni" group.

When the community is in place, each member will have the opportunity to get to know the other members, exchange e-mails, share informations, etc.

This initiative will hopefully strenghten the ties between all of us in the long term (MK/KTT).



Special event

The PhysiScope successfully launched

After two years of preparation, the PhysiScope was inaugurated on October 3rd, 2008, in the presence of Charles Beer, head of the Geneva Public Education Dpt (DIP), Geneva officials and many other guests. The official launching of this MaNEP-initiated outreach project towards high-school students - jointly developed with the Geneva Physics Section - was well covered by the local media and immediately aroused a lot of interest.

To this day, the PhysiScope team has thus performed for over 1000 visitors, including VIPs (local and national officials, SNSF representatives, Swiss television representatives, sponsors, etc.). Future developments include for instance new experiments and activities, a broader target audience and more sessions in English and German.

[www.physiscope.ch] [contact : christoph.renner@unige.ch].

Nominations & awards

Prof. Oystein Fischer



Prof. Oystein Fischer honoured by Sweden

MaNEP's director, **Prof. Oystein Fischer**, has been nominated by the Swedish Research Council for the 2009 Tage Erlander Guest Professorship. This distinction was created in 1981 to

honour the prime minister Tage Erlander on his 80th birthday. The Professorship gives internationally renowned researchers the opportunity to work for one year with a Swedish University or a higher education institute. Prof. Fischer will thus collaborate with the Chalmers University of Technology in Göteborg to develop strong interactions between research groups at Chalmers and the **UniGE**. Prof.

Fischer will also pursue his task at MaNEP and achieve the mission the UniGE's Rector entrusted him with to conceive new developments for the Physics Section in Geneva.

MaNEP team awarded by « La Recherche »

Last December, one of **Professor Triscone's** team in Geneva has been awarded a special prize by the prestigious French science magazine « La Recherche » (in the category of « Communications and Information Technology Science ») for their groundbreaking work on « improper ferroelectricity in perovskite oxide artificial superlattices ». These important results have been obtained in collaboration with a team at the University of Liège (Belgium) and published in *Nature* in April 2008 [[Publication / PDF online](#)].



The awarded team, left to right : Nicolas Stücki, Céline Lichtensteiger, Jean-Marc Triscone and Stefano Gariglio (missing on picture : Matthew Dawber)

Award and new appointment for Dr Elvezio Morenzoni



Dr E. Morenzoni, PSI

July 2008 was a special month for our colleague **Elvezio Morenzoni** : on July 1st, he was appointed Head of Laboratory for Muon Spin Spectroscopy at PSI, before receiving the 2008 Yamazaki Prize for μ SR-Science awarded by the ISMS (International Society for μ SR-Science Spectroscopy), in acknowledgment of his outstanding achievements for the development of low energy μ SR.

ETH Zurich Medal



Congratulations to **Johan Chang** – a PhD student with Professor **Joël Mésot** - for obtaining the ETH Zurich Medal for his outstanding PhD thesis on "Magnetic and Electronic Properties of the High-Temperature Superconductor $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$."

[[also see the Publications Section](#)]

Outreach

New : Swissneutronics Newsletter



Since August last year, MaNEP's industrial partner Swissneutronics (neutron optical components and instruments) publishes a newsletter that is available for download here : [latest issue : December 2008](#). For more information or to receive the newsletter directly, please contact : christian.schanzer@swissneutronics.ch

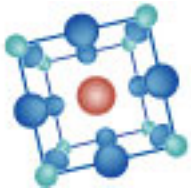
MaNEP at CERN : successful exhibition

MaNEP's public outreach material on superconductivity continues to prove its success. For nearly 4 months (October 2008 to January 31st, 2009), our levitating devices, humorous exhibition by Swiss cartoonist **Mix&Remix** and 15-minute movie have been on display during CERN's interactive event called « *Superconductivity... Science or Magic ?* » which gathered some 3000 visitors, with two opening days a week. This year, the demos will be shown during more public events in the context of UniGE's 450th anniversary. More info in due time.

Superconductivity at UniBE

Last November, UniBE organised an event on superconductivity – this time from the point of view of chemists - in the context of their public days for high school students « Bio Chemie am Samstag », during which they used some of MaNEP's demonstrating devices and the movie. Another success acknowledged by Prof. **Jürg Hulliger**, with 90 people present.

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Technology Transfer

New industrial collaboration

MaNEP established a new partnership with Secheron SA (Geneva), a leader in the DC circuit breaker market. Sécheron's main end user market is the railway.

Piezo-pinch patent

Following the invention of a new piezo-resistive technique by **Prof. Christoph Renner** and his colleagues **A. Rowe** and **S. Ascott** (respectively from UniGE, Ecole Polytechnique and CNRS in France), marketing efforts lead to expressions of interest from several companies. A technology opportunity was published by Unitec (UniGE's Technology Transfer Office) on <http://www.switt.ch>. An article was also published by *Science Business*, an online media company which aims at connecting buyers and sellers of emerging technologies. The journalist unfortunately missed two orders of magnitude in the improvement of the gauge factor: actually, the invention provides a device with gauge factors as high as 5000, compared to the less than 100 with the state of the art. This high sensitivity is surprisingly not associated with high noise level, which makes the application ideal for low consumption strain and stress sensors.

Hello & Goodbye



Last September, we held a little party to say goodbye to **Isabelle Bretton**, who was for no less than eight years the dedicated Administrative Manager of MaNEP.

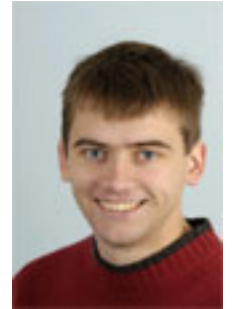
We thank her warmly for all her precious contributions and wish her the best for her future !

Dr Yanina Fasano and **Dr Pablo Pedrazzini** left MaNEP at the end of last year after their post-doc in Prof. Fischer's group. They have returned to their native country, Argentina and have both joined the Low Temperatures Lab at the Centro Atómico of Bariloche as adjoint researchers, thank to a permanent position offered by the Argentinean Research Council (CONICET). In addition, Yanina will also be a « Maître d'enseignement et de recherche », at the Instituto Balseiro, Argentinean Atomic Energy National Council CNEA in Bariloche. Our best wishes for a bright future !



Yanina and Pablo (with baby Dante)

Dr Lode Pollet has left the ETHZ (group of Prof. Matthias Troyer) and is now a post-doc at the University of Massachusetts Amherst and at Harvard (USA). Congratulations and good luck !

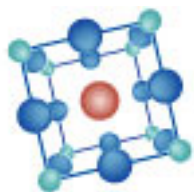


We welcome **Marie Bagnoud** and **Sophie Griessen** in the Management Team in Geneva. Since December 2008, Marie replaced **Isabelle Bretton** as our new Administrative Manager. Sophie is the new secretary for MaNEP ; she arrived in September 2008.



Marie Bagnoud and Sophie Griessen

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MaNEP materials used in sensors for the Food Industry: the PURVEGE project

The shelf life of fruits and vegetables is a major issue for the food industry. The losses due to the proliferation of microbes and bacteria are considerable, and there is a pressing demand for cleaning and decontamination processes for fresh vegetables in general.

By Dr Jorge Cors, MaNEP/DPMC at UniGE



The goal of the PURVEGE project was to demonstrate the feasibility of a new physico-chemical process involving the combined use of UV radiation and ozone.

The PURVEGE project was initiated in 2006 in the framework of the Swiss-French cooperation programme INTERREG IIIA. It involved the Laboratoire de Recherche en Génie Alimentaire LRGIA (Université Claude Bernard Lyon 1), the Technopole ALIMENTEC, EREO SAS, HEV Technologies du Vivant (Sion) and the DPMC/MaNEP from the University of Geneva.

Key steps in the process were the exposure of the cleaning water to UV radiation followed by the application of ozone. The concentration of ozone appeared as a key parameter in the process since it had to be monitored at several measuring points in the laboratory prototype.

This was a great opportunity to put at work the know-how of the DPMC in transition-metal oxides ozone sensors. Indeed resistive sensors based on MoO₃ nanorods (from the Laboratory of Inorganic Chemistry of the ETH Zürich) are very sensitive to ozone.

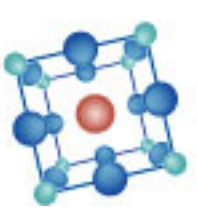
The nanorod-based sensors from MaNEP can be used as detectors to monitor ozone leaks from such installations. Although the selectivity of such devices must still be improved, the working environment of the cleaning system is free from interfering gases. This will not be the case for the automotive industry, for example.

The PURVEGE decontamination prototype was successfully tested with several vegetables. In particular, the shelf life of tomatoes and apricots was extended considerably.

The main results of the project were presented last June to the press and industry at the LRGIA in Bourg-en-Bresse. Up-scaling tests have been scheduled with industrial partners, and the scientific contribution of the DPMC/MaNEP was highly appreciated.



The PURVEGE prototype



What's new with pnictides?

by Dr. Janusz Karpinski, Laboratory for Solid State Physics, ETH Zurich

Since the first report on superconductivity at 26K in F-doped LaFeAsO at the end of February 2008 [1], the superconducting transition temperature has been quickly raised to about 55 K and several new superconductors of a general formula $\text{LnFeAsO}_{1-x}\text{F}_x$ (Ln=La, Ce, Pr, Nd, Sm, Gd, Tb, Dy) abbreviated as Ln1111 have been synthesized. Electrons carriers can be introduced by substituting F for O or by deficiency of O. By substituting Sr^{2+} for La^{3+} in La1111, holes are introduced. Later, superconductivity in AFe_2As_2 (A=Ca, Sr, Ba) (called A122) with maximum $T_c = 38$ K has been reported. They have a more simple structure in which (Fe_2As_2) -layers, identical to those in Ln1111 are separated by single elemental A layers.

There are some similarities between the new pnictides superconductors and the cuprate superconductors due to the layered structure and the fact that both Fe and Cu are 3d elements. However, there are important differences: doping on the Fe site in Sr122 or Ba122 by substitution of Fe by Co leads to the appearance of superconductivity in contrast to cuprates, where substitution of Cu suppresses superconductivity. For cuprates, doping with one oxygen atom is equivalent with two fluorine atoms doping. In FeAs-superconductors a O-deficiency is much less effective as a source of electrons than F-substitution.

Structural parameters play also an important role for obtaining highest T_c , which is achieved when As-Fe-As bond angle corresponds to ideal FeAs_4 tetrahedron.

Due to layered structure one can expect anisotropy of superconducting properties, which are, obviously, best investigated on single crystals. Single crystals are also required for spectroscopic investigations. We succeeded in the growth of the first free standing FeAs-pnictides crystals ($\text{SmFeAsO}_{1-x}\text{F}_y$) using a high-pressure cubic-anvil technique [2,3]. They have been grown using NaCl/KCl flux. Such flux has very low solubility, therefore for more efficient crystal growth very high temperature should be used, but Ln1111 becomes unstable. The decomposition can be counteracted by applying high pressure, which stabilises Ln1111 at high temperature.

Critical current measurements on these crystals show significantly large $J_c = 2 \times 10^7 \text{ A/cm}^2$ at $T=15$ K and 7 T field. Having single crystals we were able to study magnetic penetration depth and upper critical field anisotropy, which in cuprates and low temperature superconductors are equal and constant. Torque magnetometer [4] and resistivity measurements of Ln1111 single crystals show, that these anisotropies are distinctly different and temperature dependent similar to MgB_2 single crystals.

A possible and natural explanation of this fact would be a multi-band model of superconductivity. From both, experimental and theoretical sides there is strong evidence that superconductivity in the pnictides involves more than one band. Point Contact Spectroscopy investigations performed on our Sm1111 single crystals indicates the existence of two energy gaps [5]. This can be an explanation of the unusual properties of pnictides.

1. Y. Kamihara, T. Watanabe, M. Hirano, and H. Hosono, *J. Am. Chem. Soc.* 130, 3296 (2008).
2. N.D. Zhigadlo et al., „Single crystals of superconducting $\text{SmFeAsO}_{1-x}\text{F}_y$ grown at high pressure“ *J.Phys.: Condens. Matter* 20(2008) 342202.
3. Ch. Speicher, „Ein Supraleiter, mit dem niemand gerechnet hat“ *NZZ*, 25.05.2008
4. S. Weyeneth et al., „Evidence for two distinct anisotropies in the oxypnictide superconductors $\text{SmFeAsO}_{0.8}\text{F}_{0.2}$ and $\text{NdFeAsO}_{0.8}\text{F}_{0.2}$ “, accepted for *J. Supercond. Nov. Magn.*
5. J. Karpinski et al. “Single crystals of $\text{LnFeAsO}_{1-x}\text{F}_x$ (Ln=La, Pr, Nd, Sm, Gd) and $\text{Ba}_{1-x}\text{Rb}_x\text{Fe}_2\text{As}_2$: growth, structure and superconducting properties”, invited review paper submitted for the special issue of *Physica C*.

Fig. 1 Structure of the LnFeAs(O,F) superconductor.

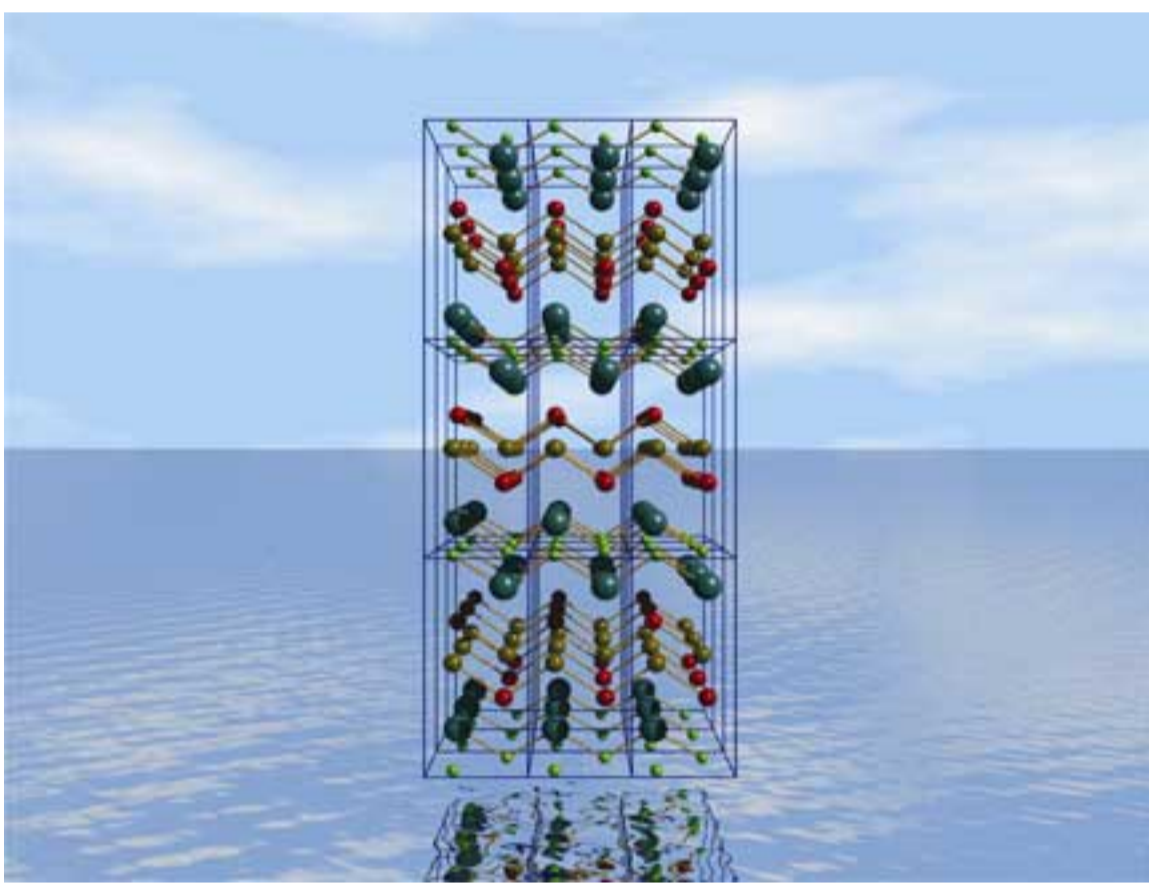


Fig. 2. Structures of LnFeAsO and BaFe2As2 compounds

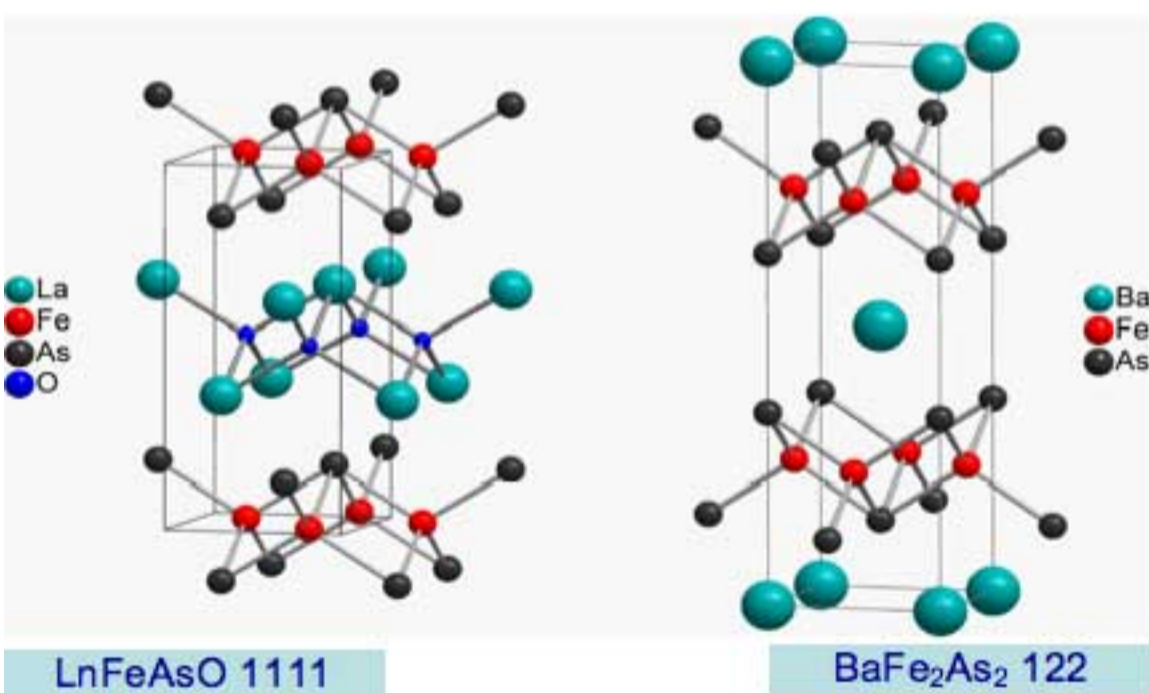
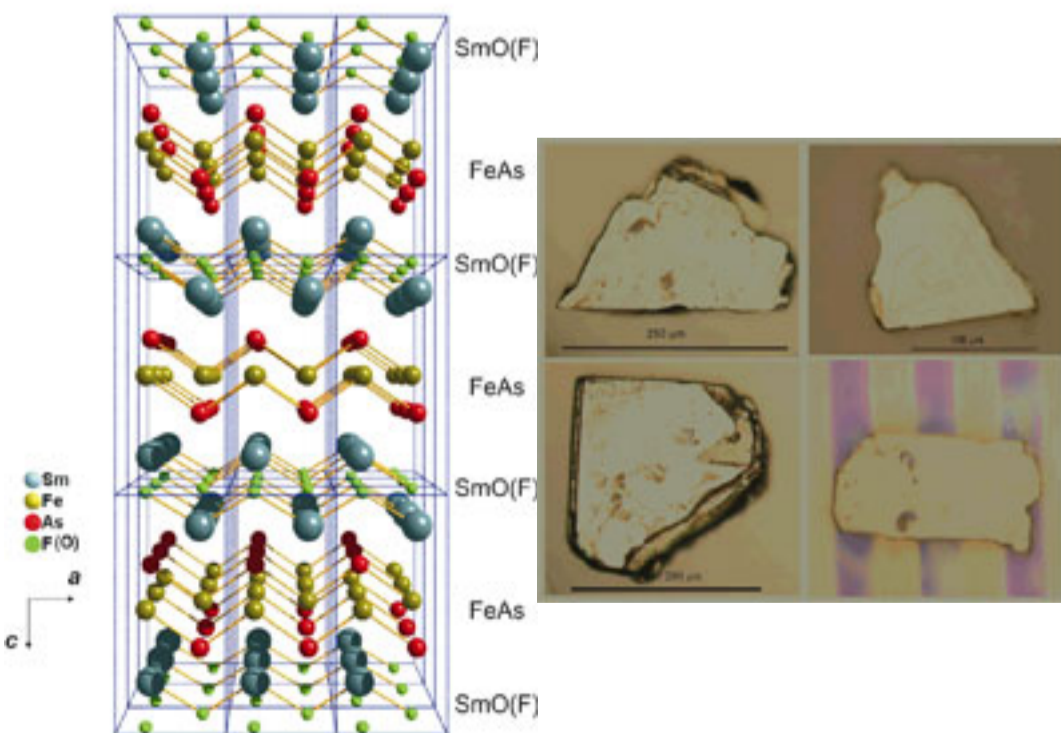
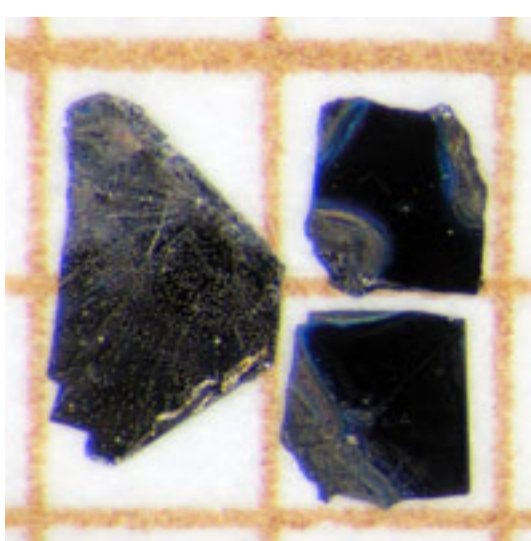
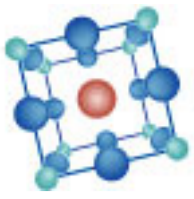


Fig. 3. Single crystals of $\text{SmFeAsO}_{1-x}\text{F}_y$.



Single crystals of $\text{Ba}_{0.9}\text{Rb}_{0.1}\text{Fe}_2\text{As}_2$ on a millimeter grid





Science

Coupled Superconducting and Magnetic Order in CeCoIn₅

By **M. Kenzelmann (PSI)**, Th. Strässle, C. Niedermayer, M. Sigrist, B. Padmanabhan, M. Zolliker, A.D. Bianchi, R. Movshovich, E.D. Bauer, J. L. Sarrao, J.D. Thompson
Science 321, 1652-1654 (2008) – [link]

Nature

Electric field control of the LaAlO₃/SrTiO₃ interface ground state

By **A. D. Caviglia (UniGE)**, S. Gariglio, N. Reyren, D. Jaccard, T. Schneider, M. Gabay, S. Thiel, G. Hammerl, J. Mannhart & J.-M. Triscone
Nature 456, 624-627 (4 December 2008) | doi:10.1038/nature07576 – [link]

Nature Materials

Direct measurement of the electronic spin diffusion length in a fully functional organic spin valve by low-energy muon spin rotation

By **A. J. Drew (UniFR)**, J. Hoppler, L. Schulz, F. L. Pratt, P. Desai, P. Shakya, T. Kreouzis, W. P. Gillin, A. Suter, N. A. Morley, V. K. Malik, A. Dubroka, K. W. Kim, H. Bouyanfif, F. Bourqui, C. Bernhard (UniFR), R. Scheuermann, G. J. Nieuwenhuys, T. Prokscha & E. Morenzoni.
doi:10.1038/nmat2333 – [link]

Physical Review Letters

Local Interactions and Non-Abelian Quantum Loop Gases

By **Matthias Troyer (ETHZ)**, Simon Trebst, Kirill Shtengel, and Chetan Nayak
Phys. Rev. Lett. 101, 230401 (2008) – [link]

Spin Freezing Transition and Non-Fermi-Liquid Self-Energy in a Three-Orbital Model

By Philipp Werner, Emanuel Gull, **Matthias Troyer (ETHZ)**, and Andrew J. Millis
Phys. Rev. Lett. 101, 166405 (2008) – [link]

Expansion of a Quantum Gas Released from an Optical Lattice

By F. Gerbier, S. Trotzky, S. Fölling, U. Schnorrberger, J. D. Thompson, A. Widera, I. Bloch, **L. Pollet (ETHZ)**, M. Troyer, B. Capogrosso-Sansone, N.V. Prokof'ev, and B. V. Svistunov.
Phys. Rev. Lett. 101, 155303 (2008) – [link]

Binding of a ³He Impurity to a Screw Dislocation in Solid ⁴He

By P. Corboz, **L. Pollet (ETHZ)**, N. V. Prokof'ev, and M. Troyer.
Phys. Rev. Lett. 101, 155302 (2008) – [link]

Spatially Resolved Inhomogeneous Ferromagnetism in (Ga,Mn)As Diluted Magnetic Semiconductors: A Microscopic Study by Muon Spin Relaxation

By V.G. Storchak, D.G. Eshchenko, E. Morenzoni (PSI), T. Prokscha, A. Suter, X. Liu, and J.K. Furdyna
Phys. Rev. Lett. 101, 027202 (2008) – [link]

Selected for the July 21, 2008 issue of Virtual Journal of Nanoscale Science & Technology.

Coherent d-Wave Superconducting Gap in Underdoped La_{2-x}Sr_xCuO₄ by Angle-Resolved Photoemission Spectroscopy

By **M. Shi (PSI)**, J. Chang, S. Pailhès, M. R. Norman, J. C. Campuzano, M. Månsson, T. Claesson, O. Tjernberg, A. Bendounan, L. Patthey, N. Momono, M. Oda, M. Ido, C. Mudry, and J. Mesot.
Phys. Rev. Lett. 101, 047002 (2008) – [link]

Thermodynamics of the Spin Luttinger Liquid in a Model Ladder Material

By Ch. Rüegg, K. Kiefer, **B. Thielemann (PSI)**, D.F. Mc Morrow, V. Zapf, B. Normand, M.B. Zvonarev, P. Bouillot, C. Kollath, T. Giamarchi, S. Capponi, D. Poilblanc, D. Biner, K.W. Krämer
Phys. Rev. Lett. 101, 247202 (2008)

Fluctuation Relations Without Microreversibility in Nonlinear Transport

By **H. Förster** and **M. Büttiker (UniGE)**.
Phys. Rev. Lett. 101, 136805 (2008) – [link]

Spin-State Polarons in Lightly-Hole-Doped LaCoO₃

By **A. Podlesnyak, M. Russina, A. Furrer, A. Alfonsov, E. Vavilova, V. Kataev, B. Büchner, Th. Strässle, E. Pomjakushina, K. Conder, and D. I. Khomskii**
Phys. Rev. Lett. 101, 247603 (2008) – [link]

Preeminent Role of the Van Hove Singularity in the Strong-Coupling Analysis of Scanning Tunneling Spectroscopy for Two-Dimensional Cuprate Superconductors

By Giorgio Levy de Castro (UniGE), **Christophe Berthod, Alexandre Piriou, Enrico Giannini, and Øystein Fischer**
Phys. Rev. Lett. 101, 267004 (2008) – [link]

Electron-Phonon Interaction and Charge Carrier Mass Enhancement in SrTiO₃

By **J.L.M. van Mechelen (UniGE)**, D. van der Marel, C. Grimaldi, A.B. Kuzmenko, N.P. Armitage, N. Reyren, H. Hagemann, I.I. Mazin.
Phys. Rev. Lett. 100, 226403 (2008) – [link]

Controlling Luttinger Liquid Physics in Spin Ladders under a Magnetic Field

By **M. Klanjšek, H. Mayaffre, C. Berthier, M. Horvati, B. Chiari, O. Piovesana, P. Bouillot (UniGE), C. Kollath, E. Orignac, R. Citro, and T. Giamarchi**
Phys. Rev. Lett. 101, 137207 (2008) – [link]

Orbital Currents in Extended Hubbard Models of High-Tc Cuprate Superconductors

By **Cédric Weber (UniGE), Andreas Läuchli, Frédéric Mila, and Thierry Giamarchi**
Phys. Rev. Lett. 102, 017005 (2009) – [link]

Observation of Two Nondispersive Magnetic Excitations in NiO by Resonant Inelastic Soft-X-Ray Scattering

By G. Ghiringhelli, A. Piazzalunga, C. Dallera, T. Schmitt, V. N. Strocov, J. Schlappa, L. Patthey, X. Wang, H. Berger, and **M. Grioni (EPFL)**.
Phys. Rev. Lett. 102, 027401 (2009) – [link]

Tunable Spin Gaps in a Quantum-Confined Geometry

By Emmanouil Frantzeskakis, Stéphane Pons, Hossein Mirhosseini, Jürgen Henk, Christian R. Ast, and **Marco Grioni (EPFL)**.
Phys. Rev. Lett. 101, 196805 (2008) – [link]

Near-Edge X-Ray Absorption Fine-Structure Investigation of Graphene

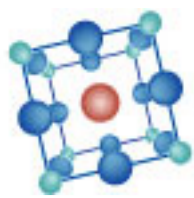
By **D. Pacilé (EPFL)**, M. Papagno, A. Fraile Rodríguez, M. Grioni, L. Papagno, Ç. Ö. Girit, J. C. Meyer, G. E. Begtrup, and A. Zettl.
Phys. Rev. Lett. 101, 066806 (2008) – [link]

Superconducting Energy Gap and c-Axis Plasma Frequency of (Nd,Sm)FeAsO_{0.82}F_{0.18} Superconductors from Infrared Ellipsometry

By **A. Dubroka (UniFR), K. W. Kim, M. Rössle, V. K. Malik, A. J. Drew (UniFR), R. H. Liu, G. Wu, X. H. Chen, and C. Bernhard**
Phys. Rev. Lett. 101, 097011 (2008) – [link]

Coexistence of Magnetic Fluctuations and Superconductivity in the Pnictide High Temperature Superconductor SmFeAsO_{1-x}F_x Measured by Muon Spin Rotation

By **A. J. Drew (UniFR)**, F. L. Pratt, T. Lancaster, S. J. Blundell, P. J. Baker, R. H. Liu, G. Wu, X. H. Chen, I. Watanabe, V. K. Malik, A. Dubroka, K. W. Kim, M. Rössle, and C. Bernhard.
PRL 101, 097010 (2008) – [link]



Physical Review B

Stability and structure of atomic chains on Si(111)

By C. Battaglia, P. Aebi, S.C. Erwin.

Phys. Rev. B 78, 075409 (2008) – [[link](#)]

(Also selected for *Virtual Journal of Nanoscale Science and Technology*, August 25 2008)

Anisotropic quasiparticle scattering rates in slightly underdoped to optimally doped high-temperature La_{2-x}Sr_xCuO₄ superconductors

By J. Chang, M. Shi (PSI), S. Pailh es, M. M ansson, T. Claesson, O. Tjernberg, A. Bendounan, Y. Sassa, L. Patthey, N. Momono, M. Oda, M. Ido, S. Guerrero, C. Mudry, and J. Mesot.

Physical Review B 78, 205103 (2008) – [[link](#)]

Tuning competing orders in La_{2-x}Sr_xCuO₄ cuprate superconductors by the application of an external magnetic field

J. Chang, Ch. Niedermayer, R. Gilardi, N. B. Christensen, H. M. R onnow, D. F. McMorrow, M. Ay, J. Stahn, O. Sobolev, A. Hiess, S. Pailhes, C. Baines, N. Momono, M. Oda, M. Ido, and J. Mesot.

Phys. Rev. B 78, 104525 (2008) – [[link](#)]

Electron counting with a two-particle emitter

By Janine Splettstoesser, Sveta Ol'khovskaya, Michael Moskalets, and Markus B uttiker (UniGE)
Phys. Rev. B 78, 205110 (2008) – [[link](#)]

Evidence of nodeless superconductivity in FeSe_{0.85} from a muon-spin-rotation study of the in-plane magnetic penetration depth

By R. Khasanov, K. Conder (PSI), E. Pomjakushina, A. Amato, C. Baines, Z. Bukowski, J. Karpinski, S. Katrych, H.-H. Klauss, H. Luetkens, A. Shengelaya, and N. D. Zhigadlo.

Phys. Rev. B 78, 220510(R) (2008) – [[link](#)]

Upper critical fields well above 100 T for the superconductor SmFeAsO_{0.85}F_{0.15} with T_c=46 K

By C. Senatore and R. Fl ukiger (UniGE), M. Cantoni, G. Wu, R. H. Liu, and X. H. Chen

Phys. Rev. B 78, 054514 (2008) – [[link](#)]

Fraction of Bose-Einstein condensed triplons in TiCuCl₃ from magnetization data

By R. Dell'Amore, A. Schilling (UniZH) and K. Kr amer

Phys. Rev. B 78 224403 (2008) – [[link](#)]

$U(1)$ -Symmetry breaking and violation of axial symmetry in TiCuCl₃ and other insulating spin systems

By R. Dell'Amore, *A. SCHILLING* and K. Kr amer.

/accepted in/ Phys. Rev. B

Symmetry breaking and violation of axial symmetry in TLCuCl₃ and other insulating spin systems

By R. Dell'Amore, A. Schilling and K. Kr amer

Phys. Rev. B 79 (2009) 014438.

Journal of Physics – Condensed Matter

Elementary structural building blocks encountered in silicon surface reconstructions

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