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Next issue : mid-December 2005 / deadline : December, 2005

Edito

by Prof. Oystein Fischer

2006 : a busy year for MaNEP



As the end of the year gets closer, let me highlight some important issues that lay ahead of us for 2006.

First of all, in 2006, superconductivity researchers in all the world will celebrate the 20th anniversary of High Tc superconductors and honour our Swiss Nobel-winners Karl-Alex Müller and Georg Bednorz. We know that an important event will take place at the Physics Institute of the University of Zurich and it goes without saying that MaNEP will as well contribute to this celebration year.

In February, MaNEP will also play an important role in the annual SPS Meeting. This will be the second time we are strongly involved in this and I hope this new contribution will be as good as the first one. You can now register and submit your abstract online (see our Highlights section).

In 2005, we noticed that MaNEP is clearly getting more visible in the outside : our superconductivity demos (the 'flying train' in particular), for instance, are more often displayed at our partners' Open Days, as well as during Education Days and all kinds of events aimed at the general public. This trend should continue in 2006, to our satisfaction, as this is part of our communication mission.

But then the need emerges to both improve our existing demos and create new ones. Several people in Geneva have started working on this. We will also have to find ways to encourage people in MaNEP to participate in all these events, but without it becoming a burden.

In this fourth issue of MaNEP's E-Newsletter, I want to acknowledge our former member Prof. Albert Furrer who was awarded a prestigious prize by the ENSA. He was also interviewed in our Profile section.

Finally, I would like to thank the contributors to this issue, as some of them have even provided spontaneous texts. So please.... keep at it !

MaNEP Highlights

Meeting in Fribourg : full programme available



As announced in the previous issue, the traditional meetings on strongly correlated systems will restart thanks to the initiative of MaNEP's Forum member Prof. Dionys Baeriswyl, from the University of Fribourg. It will take place on December 2, 2005, from 14:15 to 17:00.

The full program is now available on PDF.

This reunion is informal, there is no need to registrate. For further questions, please mail to Prof. Dionys Baeriswyl.

[also see UniFr website]

2006 SPS Meeting : online registration ready



MaNEP will organize an important symposium during the next SPS Meeting that will take place on February 13 and 14, 2005, at the EPFL.

You can now register and submit your abstracts online (through MaNEP's home page). Here is the link : <http://www.manep.ch/en/events/sps06/>

Please mind the final deadline on December 1st !

Profile

Prof. Albert Furrer : 'A dedicated scientist does not really retire...'

A great specialist of neutron scattering, Prof. Albert Furrer will receive the Walter Halg Prize awarded by the ENSA in a few weeks [read here]. Like Prof. Hans Rudolf Ott did in the last issue [read here], he kindly accepted to answer our special set of questions to 'pseudo-retired' MaNEP professors...



You are officially retired since the end of November 2004. Will you still continue your action within MaNEP during the 2nd phase, and if so, how do you envisage your contribution ?

I will no longer be active as a project leader, but will try to provide relevant contributions in cooperation with colleagues at PSI to some of the projects defined for the 2nd phase. Another link to MaNEP is my work in the industrial company SwissNeutronics which joined MaNEP one year ago.

What would you consider your greatest scientific achievements since the beginning of your career ?

My scientific work was always related to neutron scattering. Thus I always chose novel topics which can be best studied by this technique. In the late sixties, I performed the first neutron spectroscopic experiments to determine the crystal-field levels in metallic rare-earth compounds, which later became a standard technique.

In the late seventies I started - together with my colleague H.U. Güdel, at the University of Berne - studies of isolated clusters of magnetic ions. We found that the Heisenberg Hamiltonian is an incredibly simplified description of the exchange coupling, and although it is widely and successfully used to parametrize the dynamic properties of magnetic materials, it is merely a phenomenological approach and does not reflect the true nature of the exchange interaction. We laid the theoretical and experimental background for the field of magnetic molecular compounds which today is considered to be one of the hot topics in magnetochemistry and in applied magnetism.

In the late eighties we demonstrated that the phenomenon of high-temperature superconductivity of underdoped cuprates is an inhomogeneous materials property, thus the onset of superconductivity is the result of a percolation mechanism. Moreover, by studying isotope and pressure effects in cuprates we could demonstrate the importance of lattice fluctuations for the pairing mechanism.

In the late nineties I focused my interests on quantum spin systems, and we could verify for the first time the picture of Bose-Einstein condensation of magnons in the quantum-spin dimer compound TiCuCl_3 , and thereby established a novel magnetic state of matter.

Since the creation of MaNEP in 2001, do you think collaborations between Swiss researchers have been boosted ? Could we do better and if so, how ?

Out of my 400 publications in refereed journals there are just three papers with my name as single author, which means that I always performed my scientific work in cooperation with colleagues from other institutes. Fruitful cooperations are only possible when the partners have the same interests and – most importantly – the same xchemistry or xwavelength. Regarding my own work, MaNEP contributed to make existing collaborations more visible to the outside. In my opinion, the aim of MaNEP's cooperation programs should not be so much to force scientists to cooperate, but to provide excellent boundary conditions for such collaborations.

How do you explain the small number of students choosing studies in physics ? What should be done to improve this situation ?

I do not worry about the small number of physics students (this is anyway not the case at ETH Zurich). I would worry if the quality of the students would decrease, but through all my career I was privileged to be able to attract students with the best qualifications (e.g., top 10% in examinations).

If you had to bet on the the discovery of superconductors at room T_c , how far in time would that be ? Would you bet on a Swiss research team ?

I have the same point of view as James Bond : Never say never ! One cannot predict breakthroughs in physics. They just occur when ingenuity and intuition are coupled to produce ideas away from the commonly accepted lines (the discovery of high-temperature superconductivity by Alex Müller and Georg Bednorz is exemplary). There are people with ingenuity and intuition within MaNEP, so I would certainly bet on a Swiss team.

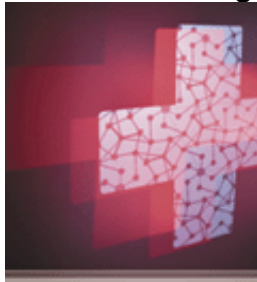
And finally, what does 'retired' Prof. Furrer do with his spare time ?

First of all, a dedicated scientist does not really retire, but continues to contribute to science as before, maybe with a slightly reduced pace (again, Alex Müller is exemplary). The advantage of retired scientists is that they can now do what they like to do most and not what they have to do (due to their position). So I will continue my research on quantum spin systems with colleagues - mainly at PSI -

who like to work with me, and I will explore new research ideas in several other fields. In addition, I am engaged in optimizing and economizing the work done at MaNEP's partner company SwissNeutronics, as well as in contributing to opinions and decisions in many international advisory, expert, selection and steering committees. Nevertheless, I will also enjoy increasingly activities outside science both in culture (classical music by playing the flute), in sports (swimming, biking, skiing), and in my leisure time (I do not mind to watch a thriller or a football match on the TV).

Physics news and readings

SNF brochure highlights research in the 20 NCCR



The SNF has just edited a free brochure called 'Cutting Edge Research Made in Switzerland' presenting the 20 NCCR with a selection of some key research projects, interviews of Pascal Couchepin and others, etc. The 35 pages brochure contains 5 chapters (Health, Risks, Coexistence, Life and Matter, New Technologies).

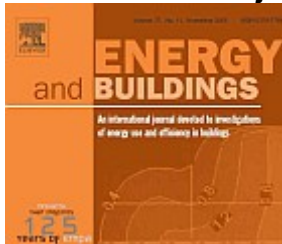
If you have not yet received it, you can download it from the SNF website :

[click here](#) for the English version.

[click here](#) for the French version.

[click here](#) for the German version.

EMPA features in journal 'Energy and buildings'



«Energy and Buildings» - a professional journal from the Elsevier stable - is devoting its November issue exclusively to subjects of core interest to three EMPA laboratories, to celebrate the institution's 125 years of existence.

[more infos [on EMPA website](#)]

[link to [the Energy and Buildings issue on sciencedirect.com](#)]

MaNEP-sponsored Einstein exhibition in the 'Tribune de Genève'

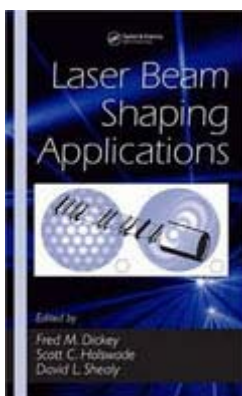


Launched on October 27, the photo exhibition on Einstein's life that is sponsored by MaNEP [also read on [MaNEP's home page](#)] was covered by a large article in the main Geneva daily newspaper La Tribune de Genève. The exhibition will end on November 28.

You can read it online [here](#) (in French).

[[PDF of exhibition's brochure](#) containing all texts, courtesy of Mr Isaac Benguigui - author]

How-to book on laserbeam-shaping applications



A 357-page volume that offers readers the thoughts of 19 prominent practitioners who share their in-depth knowledge of how to shape laser beams to optimize their utility and improve their future development.

Contributors hail from sites as diverse as Moscow, Pretoria, Rochester, and Albuquerque.

In nine illustrated chapters, the authors — leaders in their respective specialties — discuss how to improve illuminators for microlithography, array-type laser printing systems, and excimer laser image systems, as well as optical data storage, isotope separation, shaping via flexible mirrors, and spectral control of spatially dispersive lasers. There is also a review of the modern field of beam-shaping.

[\[more infos\]](#)

Pennsylvania researchers create hybrid sensor

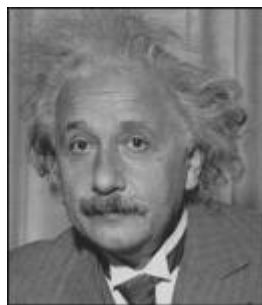


Nano-sized carbon tubes coated with strands of DNA can create tiny sensors with abilities to detect odors and tastes, according to researchers at the University of Pennsylvania and Monell Chemical Sciences Center. Their findings are published in the current issue of the journal Nano Letters, a publication of the American Chemical Society.

[\[full story\]](#)

MaNEP comment (by Dr O. Kuffer) : Electronic "nose" detectors aim at imitating olfactory systems in biological organisms. The challenges are consequent: sensitivity, selectivity, rapid response, small recovery time and even molecular identification. The sensors shown in the paper seem very promising in this field and also illustrate how small the frontier between physics and biology can be! Original ref : C. Staii et al., NANO LETTERS 5 (9), 1774 (2005).

Einstein's remarks on superconductivity now in English



Albert Einstein has published his first paper on the arxiv.org preprint server. The paper, "Theoretical remark on the superconductivity of metals", was first published in German in 1922 and has now been translated into English by Bjoern Schmekel of the University of California at Berkeley (physics/0510251). It is believed to be Einstein's only publication on superconductivity.

[\[full story on physicsweb.org\]](#)

[\[link to the paper on arxiv.org\]](#)

MaNEP Publications

You will find below a selection of recent top publications **by MaNEP members**. Please, keep us informed of the publications you would like to appear in the next MaNEP E-newsletters. A complete list of our scientific publications can be found each year in MaNEP's annual report and on MaNEP's website.

Physical Review Letters (1 article)
Nature Materials (1 article)
Physical Review B (1 article)
Journal of Physics : Condensed Matter (1 article)
Thermochimica Acta (1 article)

Physical Review Letters (1 article)

Unusual Behavior of the Ferroelectric Polarization in PbTiO₃/SrTiO₃ Superlattices



by M. Dawber / DPMC - University of Geneva (picture), C. Lichtensteiger, M. Cantoni, M. Veithen, P. Ghosez, K. Johnston, K. M. Rabe, and J.-M. Triscone - PRL 95, 177601 (2005)

A personal resume by Matt Dawber : 'More bites from a ferroelectric sandwich'

With today's advanced deposition techniques one of the most popular approaches in the search for exceptional material properties is to fabricate multilayers of two or more materials grown epitaxially one on top of each other, not entirely dissimilar to layers of meat and bread in a very large sandwich (though perhaps a little more expensive). Our interest is in ferroelectric materials, which possess an electrical polarization in the absence of an applied electric field and are used in applications ranging from non-volatile memories to a host of piezoelectric devices. Specifically we made a series of 20 bi-layer superlattices, in which each bi-layer was composed of a 3 unit cell thick layer of strontium titanate (a paraelectric material) and layer of lead titanate (a ferroelectric material) which had a thickness varied from 1 unit cell to 54 unit cells. The expectation was that as the volume fraction of the lead titanate was reduced the polarization of the superlattice structure should decrease, and indeed so long as the ratio of lead titanate to strontium titanate was greater than one this is what we observed. However when the ratio of lead titanate was further reduced we observed an unexpected recovery of the polarization, which we were unable to explain either on the basis of an electrostatic model or from first principles calculations. This counter-intuitive result suggests that on the smallest length scales ferroelectricity behaves in a highly intriguing manner, a property that is ripe for future exploitation in nanoscale devices.

Official abstract

Artificial PbTiO₃/SrTiO₃ superlattices were constructed using off-axis rf magnetron sputtering. X-ray diffraction and piezoelectric atomic force microscopy were used to study the evolution of the ferroelectric polarization as the ratio of PbTiO₃ to SrTiO₃ was changed. For PbTiO₃ layer thicknesses larger than the 3-unit cell SrTiO₃ thickness used in the structure, the polarization is found to be reduced as the PbTiO₃ thickness is decreased. This observation confirms the primary role of the depolarization field in the polarization reduction in thin films. For the samples with ratios of PbTiO₃ to SrTiO₃ of less than one, a surprising recovery of ferroelectricity that cannot be explained by electrostatic considerations was observed.

[\[link to the PDF\]](#)

Nature Materials (1 article)

Three-dimensionality of field-induced magnetism in a high-temperature superconductor



by B. Lake, K. Lefmann, N. B. Christensen, G. Aeppli, D. F. McMorrow, H. M. Ronnow / LNS - PSI - ETHZ (picture), P. Vorderwisch, P. Smeibidl, N. Mangkorntong, T. Sasagawa, M. Nohara, H. Takagi - Nature Materials 4, 658-662 (01 Sep 2005) Letters

Abstract

Many physical properties of high-temperature superconductors are two-dimensional phenomena derived from their square-planar CuO₂ building blocks. This is especially true of the magnetism from the copper ions. As mobile charge carriers enter the CuO₂ layers, the antiferromagnetism of the parent insulators, where each copper spin is antiparallel to its nearest neighbours¹, evolves into a fluctuating state where the spins show tendencies towards magnetic order of a longer periodicity. For certain charge-carrier densities, quantum fluctuations are sufficiently suppressed to yield static long-period order²⁻⁶, and external magnetic fields also induce such order⁷⁻¹². Here we show that, in contrast to the chemically controlled order in superconducting samples, the field-induced order in these same samples is actually three-dimensional, implying significant magnetic linkage between the CuO₂ planes. The

results are important because they show that there are three-dimensional magnetic couplings that survive into the superconducting state, and coexist with the crucial inter-layer couplings responsible for three-dimensional superconductivity. Both types of coupling will straighten the vortex lines, implying that we have finally established a direct link between technical superconductivity, which requires zero electrical resistance in an applied magnetic field and depends on vortex dynamics, and the underlying antiferromagnetism of the cuprates.

[\[link to the PDF\]](#)

Physical Review B (1 article)

Temperature-modulation analysis of superconductivity-induced transfer of in-plane spectral weight in Bi₂Sr₂CaCu₂O₈



by A. B. Kuzmenko, H. J. A. Molegraaf, F. Carbone, and D. van der Marel - Phys. Rev. B 72, 144503 (2005)

Abstract

We examine the superconductivity-induced redistribution of optical spectral weight in Bi₂Sr₂CaCu₂O₈ near optimal doping using a detailed Kramers-Kronig consistency analysis of the kink (slope change) at T_c of the temperature-dependent optical spectra, published earlier [H. J. A. Molegraaf et al., Science 295, 2239 (2002)]. We demonstrate that the temperature dependence of the complex dielectric function at high frequencies (above 0.75 eV) imposes the most stringent limits on the possible changes of the low-frequency integrated spectral weight. The presented calculations provide additional arguments, supporting the previous conclusion about a superconductivity-induced increase of the integrated low-frequency spectral weight below T_c. The Ferrell-Glover-Tinkham sum rule is not satisfied well above 2.5 eV, which indicates that this increase is caused by the transfer of spectral weight from the interband to the intraband region and only partially by the narrowing of the Drude peak.

[\[link to the PDF\]](#)

Journal of Physics : Condensed Matter (1 article)

Novel spin lattice in Cu₃TeO₆: an antiferromagnetic order and domain dynamics



by M. Herak, H. Berger / EPFL (picture), M. Prester, M. Miljak, I. Živkovic, O. Milat, D. Drobnic, S. Popovic and O. Zaharko - J. Phys.: Condens. Matter 17 7667-7679

Abstract

We report on the magnetic properties of an insulating cubic compound Cu₃TeO₆ studied by ac and dc susceptibility, torque magnetometry and neutron powder diffraction. A novel three-dimensional magnetic lattice composed of almost planar regular hexagons of Cu²⁺ S = 1/2 spins is present in Cu₃TeO₆. The magnetic susceptibility in the paramagnetic state obeys the Curie–Weiss law in the 200–330 K regime with Θ_{CW} = -148 K and at T_N = 61 K system undergoes an antiferromagnetic phase transition. Above T_N the susceptibility is isotropic. Below T_N a large anisotropy develops in fields H ≥ 500 Oe. Torque measurements reveal the presence of antiferromagnetic domains below T_N. In a rather low magnetic field (Oe) switching of domains is observed. The dynamics related to movement of domain walls is very slow at low temperatures (of the order of 10² s) and interferes with all torque measurements. The presence of domains is a consequence of the symmetry of the underlying magnetic lattice. Neutron powder diffraction reveals that antiferromagnetic long-range order is associated with the wavevector . The dominant component of the magnetic moment is along one of the space diagonals of the cubic unit cell, but it is not possible to resolve whether the structure is collinear or canted.

[\[link to the PDF\]](#)

Thermochimica Acta (1 article)

Tantalum and niobium perovskite oxynitrides: Synthesis and analysis of the thermal behaviour



by A. Rachela, S.G. Ebbinghaus, M. Güngerich, P.J. Klarb, J. Hanssa, A. Weidenkaff / EMPA (picture), and A. Rellera - Thermochimica Acta 438 (2005) 134–143

Abstract

Ta⁵⁺ and Nb⁵⁺-based oxynitride perovskites of the ABO₂N type (A = Ca, Sr, Ba) were synthesised by ammonolysis of complex oxide precursors. These precursors were either crystalline perovskites or amorphous xerogels prepared by solid–solid reaction and by soft chemistry methods, respectively. Phase purity of the oxynitrides was verified by X-ray diffraction (XRD) and their crystal structures were determined by Rietveld refinements. The morphology of the obtained powders was characterised by scanning electron microscopy (SEM). Thermal stability was investigated by thermogravimetric analysis (TGA) coupled with mass spectroscopy. Oxidation studies reveal an intermediate product that gives rise to a characteristic weight gain in the TG curve. This intermediate was found for all the examined oxynitrides in oxidising atmosphere. Investigations by Raman scattering revealed the presence of dinitrogen (N₂) loosely bound to B and NB bonds (B = transition metal) in the intermediate compounds. Mass spectral analysis confirmed molecular nitrogen evolution indicating that N₂ is retained during the oxidation reaction. At higher temperatures (T = 800–1000 °C) the dinitrogen is released leading to the formation of the corresponding oxides.

[\[link to the PDF\]](#)

Agenda

Geneva Einstein exhibition based on Swiss Comic Book

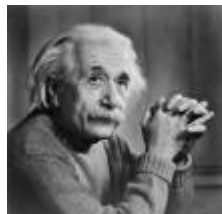


Fiami is a Swiss Comic Book designer. His last work is called 'The Lives of Einstein'... The book is the basis for an exhibition at the Museum of Sciences of Geneva (in the Perle du Lac park) started on November 3 and lasting until April 3, 2006. On November 24, a general public conference called 'Les héritiers d'Einstein' (Einstein's heirs) will also take place there, à 18:30.

[\[Fiami's website : to order the book in French, English and German - and for more infos\]](#)

MaNEP sponsors an Einstein exhibition - REMINDER

Until November 28 - Geneva - Sciences III



The Sciences III building will host a photo exhibition on key-moments and issues of Albert Einstein's life : the 'miraculous year' 1905, his first Honoris Causa doctorate from the UniGE in 1909, the World War II period, his family, his vision of faith, etc. This event is organized by Isaac Benguigui, a *Privat Docent* at UniGE, and is supported by the City of Geneva, the Hebrew University of Jerusalem's Swiss Association of Friends and by MaNEP.

Opening hours : Monday to Friday, 8:00 to 20:00.

2006 : 20th anniversary of High T_c superconductors - REMINDER



Several events will take place next year to celebrate the 20th anniversary of the discovery of high temperature superconductivity in cuprates. Among them, a Symposium will be held in honor of J.G. Bednorz and K.A. Müller (*picture left*) at

the Physics Institute of the University of Zurich, on 27 - 29 March, 2006. Co-organizer : Hugo Keller / keller@physik.unizh.ch. [all infos [here](#)]

Meeting on strongly correlated systems - REMINDER December 2, University of Fribourg



The traditional meetings on strongly interrupted systems had been interrupted for a while, but will start again on the initiative of MaNEP's Forum member Prof. Dionys Baeriswyl, from the University of Fribourg. The program includes 4 talks of 30 minutes each. Full programme [here](#).

Superconductivity in everyday life : a travelling exhibition - REMINDER In Barcelona (Spain) - November 5 to 22

In Oxford (UK) - April 2006



This interactive exhibition presents the basics of operation and utilization of special superconductive instruments in an understandable way. During the exhibition you can view and test the levitated chess, magnetically levitated train, contactless conveyor, levitator and a number of other applications, such as flywheel with magnetic bearing, fault current limiter, water purifier, etc. The exhibition has already travelled in Hungary and Germany. [for all details, please refer to the website : www.superlife.info]

Awards

Prof. Albert Furrer receives the 2005 Walter Hälg Prize



The former head of the Laboratory for Neutron Scattering (LNS) and member of MaNEP Prof. Albert Furrer (ETH Zurich and Paul Scherrer Institute) has been awarded the prestigious Walter Hälg Prize of the European Neutron Scattering Association (ENSA), jointly with Prof. Hans Ulrich Güdel (University of Bern). The 2005 Prize will be presented during the International Conference on Neutron Scattering in Sidney, between November 27 and December 2. The ENSA Prize is awarded every two years to European scientists for an outstanding programme of research in neutron scattering with a long term impact on scientific and/or technical applications.

[download the Pres Release in PDF for more infos]

[more infos on Prof. Albert Furrer on the ENSA website]

Prof. Oystein Fischer awarded a Honoris Causa Doctorate from UniNE



During the Dies Academicus of the University of Neuchatel that took place on Saturday November 5, 2005 - in the presence of Charles Kleiber, the State Secretary for Education and Research - Prof. Oystein Fischer received a Honoris Causa Doctorate. With this gesture, the press release says, '... the Faculty of Sciences wishes to honour a world-known physicist for his fundamental contributions to the understanding of condensed matter physics and for the close collaboration he has maintained with the research groups at the Institute of Physics

of the UniNE that are working in this field (...)

[download the full press release in PDF - see page 23 concerning Pr. Fischer]

Flashback

PSI's Day of Physics : 9000 visitors take a close look at labs and facilities

by Stefan Janssen

On October 30, 2005 the Paul Scherrer Institut near Villigen (AG) opened its doors and faced an



overwhelming interest of the public : more than 9000 people took the opportunity to have a closer look at the PSI facilities and research labs during the 'Day of Physics'.

On their way the visitors passed by four Einstein-Presentations entitled Light, Space and Time, Energy and Atoms. In multimedia shows the people were introduced to topics like Speed of light, $E=mc^2$, photo effect or diffusion.

In addition the PSI User Laboratories and the particle physics presented their methods and

hot research topics in a public manner. At the SINQ lab, the presentation showed how neutrons might help to explain the effect of High-Temperature Superconductivity. A special highlight was the superconducting 'MaNEP model railway', which was kindly made available by Geneva's Institute of Physics.

The PSI/Michelin fuel cell car 'HY-LIGHT', the PSI proton therapy facility, several information booths on energy research and environment as well as a special physics laboratory for children completed a very interesting, colorful and lively Open Day at PSI, which will definitely not be the last one.



[Figure caption right : Even 'Einstein' showed up to make sure his theories are really understood...]

[\[more infos on the PSI website\]](#)

September's international "Perovskite" Conference at EMPA

by Ekaterina Pomjakushina and Kazimierz Conder

An international conference called "Perovskites - Properties and Potential Applications" was held on September 5-7, 2005 at EMPA, in Dübendorf. The aim was to assemble scientists from universities, scientific institutes as well as industry to promote international cooperations on perovskite-type materials.

Perovskites are a large family of crystalline materials, which derive their name from a natural mineral

“perovskite” (CaTiO_3) found in the Ural in 1839 by Gustav Rose who named it after the Russian minister L. A. Perovski. A specific crystal structure is usually correlated with specific electrical properties, but perovskites behave like chameleons, acting as perfect insulators as well as semiconductors, ionic conductors, metal-like conductors or even superconductors. The magnetic properties are also manifold, with colossal magnetoresistivity as prominent example.

Over 130 participants from 18 countries took part in a forum with physicists, chemists and material scientists who are all working with perovskites. The conference began with opening remarks about the 125 –year history of EMPA by Louis Schlapbach, director of EMPA. Excellent and comprehensive



lectures on theory, properties and applications of perovskites were given by the authorities in the field. About 50 plenary talks highlighted studies on the synthesis, properties and applications for well-known and novel perovskite materials. During the two poster sessions - with almost 60 posters - we had lively debates and a fruitful exchange of ideas.

MaNEP groups were represented mostly by PSI and EMPA research teams reporting their work on cobaltites and oxynitrides. The conference summary was given in an original and humorous way by M. A. Alario-Franco (University of Madrid, Spain). The meeting also provided opportunities to advance scientific skills during practical workshops on the “Rietveld Method” (by J. R. Carvajal, LLB Saclay, France) [picture left], “Transition Electron Microscopy” (by M. J. W. Seo, EPFL Lausanne, Switzerland) and “X-ray Absorption Spectroscopy” (by T. Ressler, FHI Berlin, Germany).



Our thanks go to the organizing Committee and especially to the chair Anke Weidenkaff [picture right] and her colleagues for an excellently organized and stimulating meeting. The “perovskite community” enjoyed this conference and strongly suggested to have another one...