

## News Summary

**The Report from EPS HQ**

The EPS Interdivisional Group on Accelerators held its biannual General Assembly in June of this year. Steve Meyers (CERN) is elected Chairman of the Board, replacing Sergio Tazzari (University of Rome) who has served as chairman for the past 2 years. The EPS would like to thank Professor Tazzari for his hard work and dedication and congratulate Dr. Meyers on his election.

The European Particle Accelerator Conference (EPAC 98) organized by the Accelerator Group took place in Stockholm from June 22 to 26. It welcomed around 700 participants from around the world. Over 750 papers were contributed to the proceedings—a preliminary version is available via the EPAC 98 Web page [www.cern.ch/EPAC/stockholm/EPAC98/Welcome/General.html](http://www.cern.ch/EPAC/stockholm/EPAC98/Welcome/General.html). A CDRom version should be available by the end of September and a paper version in October.

Following up on Claude Sebenne's article **More Awards in Europe Please** published last year in *Europhysics News* 28 5-6, the Executive Committee in its meeting on 27 June in Mulhouse decided to consult its members, divisions and groups for ideas for prizes.

Prizes could be of the following types:

1. general EPS prizes for outstanding contributions to physics, a book prize, for example, for the best text book in physics;
2. prizes that commemorate an important event either in physics or in society, such as a photo or essay competition to mark the new millennium;
3. finally, specific prizes awarded by EPS divisions and groups for outstanding contributions in a given field, or for promising young physicists.

If you have any ideas or suggestions on prizes that would be consistent with EPS aims and objectives, please send them to David Lee, Secretary General, EPS, 34 rue Marc Seguin, BP 2136, F-68060 Mulhouse Cedex, [email d.lee@univ-mulhouse.fr](mailto:d.lee@univ-mulhouse.fr)

A working group headed by Executive Committee member P.A. Lindgård on **improving communications** to and from individual physicists throughout Europe presented its preliminary results to Council in March 1998. Having begun with a pilot project comprising the national physical societies in Portugal, Denmark, Sweden, Finland, Norway and the UK, the working group now invites all national physical societies to join.

National physical societies are asked to provide the name of a contact person and to indicate what topical subdivisions exist in their Society, and the means with which they communicate with their national society members. Information about the activities of EPS divisions and groups, conferences *etc.*, are centralized at the Mulhouse Secretariat, and then sent out to the national societies who will then communicate with their members.

The **Action Committee on Scientific Communications and Publications** has set up a working group to study EPS policy and strategy with respect to electronic communications. An excerpt of the project submitted by the Action Committees new Chairman, Claus Montonen, to the Executive Committee in June provides the rationale behind this project:

"The scene of scientific information flow (in its widest sense) is rapidly changing as a consequence of the introduction of new technology. There is a perceived need for the EPS to establish on one hand a policy on electronic information media—how the EPS should approach the Internet or its successors, providing general guidelines for members and the physics community—and on the other hand a strategy for scientific electronic communication—developing services that the EPS should provide for the physics community online."

The working group will be studying these issues and provide a series of measures to the Executive Committee at its next meeting in November. If you have any ideas or would like to participate in the working group, please contact David Lee, Secretary General, EPS, 34 rue Marc Seguin, BP 2136, F-68060 Mulhouse Cedex, [email d.lee@univ-mulhouse.fr](mailto:d.lee@univ-mulhouse.fr)

J. Charap, Chairman of the **Physics and Society Action Committee** has proposed that the Committee be discontinued. The Executive Committee accepted this proposal at its meeting on 27 June. The scope of the Action Committee was too broad, making projects unfeasible, and which anyway overlapped with activities of other EPS Divisions and Interdivisional Groups. The Executive Committee expressed their thanks to J. Charap for his hard work while he was Chairman of the Action Committee.

However, the Executive Committee recognizes the importance of increasing public awareness of the role of physics in society as a means of promoting physics as a science and ensuring its future. It therefore

**European Physical Society**

News from EPS is published by *Europhysics News*, reaching physicists across all of Europe

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decides to create an executive group the task of which is to address the issues relating to the public understanding of science, to reallocate tasks and set clear objectives. The members of this executive group, called the Future of Physics, are J.P. Ansermet, G. Benedek, R. Sosnowsky and A. Wolfendale.

**European Physical Society Council**

The Executive Committee in its meeting on 27 June in Mulhouse fixed the date and place for the 1999 EPS Council Meeting. It is scheduled for Friday April 9th and Saturday April 10th in Mulhouse, France.



**Claus Montonen, Chairman of an Internet working group, will be looking at what services the EPS should provide online**



## Awards

## Condensed Matter

At the EPS Condensed Matter Division General Conference held in Grenoble from 24 to 29 August, the 1998 Hewlett-Packard Europhysics prize was formally presented to Professor T.M. Rice for "his outstanding and original contributions to the theory of strongly correlated electron systems" (see *Europhysics News* 29 3 1998 page 86). Below is the text of the full citation.

Professor Rice in combination with various collaborators has and still is playing a central role in the continuing discussion on the relation between the electronic structure and physical properties of strongly correlated systems such as the high temperature superconductors and the 3d transition metal oxides in general.

His deep understanding of the chemistry and crystal structure of these systems and the relation to the electronic structure and elementary excitations together with his theoretical expertise related to the many body problem has led to the development of theoretical models which are believed to capture the basic physics describing the physical properties of these systems. The model Hamiltonians resulting from his work form the basis of the interpretation of a large variety of experimental results which at the same time function as critical tests for the accuracy of the mod-

els. These ideas have also led him to the direct search for new model compounds such as the now much studied ladder compounds, a direct result of a very fruitful interaction between theoretical physics and solid state chemistry. His group played a central role in introducing the concept of local singlet formation in the doped cuprates now referred to as the Zhang-Rice singlet (*Phys. Rev. B* 37 (1988) 3759), which not only provides a possible justification of the reduction of a multiband Hubbard model to the single band model and in the limit of large interactions the very much studied tJ model, but is also a concept which is playing an equally important role in the discussions of doped transition metal oxides in general.

His work together with Gopalan and Sigrist (*Europhys. Lett.* 23 (1993) 445) opened the search for new so called ladder compounds like  $\text{SrCu}_2\text{O}_3$ ,  $\text{Sr}_2\text{Cu}_3\text{O}_5$  etc, in which the Cu-O planes would be structured in such a way that the strong antiferromagnetic superexchange interactions resulting from 180 degree Cu-O-Cu bonds would be interrupted in a periodic fashion, be very weak and frustrated ferromagnetic interaction leading to almost non interacting ladder like structures as far as the magnetic interactions are concerned. By varying the chemical composition the number of legs in the ladders could be systematically varied providing a model sys-

tem to gradually progress from a one-dimensional chain-like system to 2-dimensional planes representative of the high  $T_c$  cuprates. His prediction of a spin gap in the 2 leg ladder and hole pairing in the doped 2 leg ladder has led to a serious and successful efforts to synthesize such compounds which are now the subject of intense investigations.

This work of Rice and coworkers has opened a new field of cuprates with quantum magnetic ground states and superconductivity. Rice in collaboration with Sigrist (*J. Phys. Soc. Japan* 61 (1992) 4283) proposed a controlled test for 'd wave' symmetry of the order parameter in superconductors. This proposal originated from their explanation of the so called paramagnetic Meissner effect in granular high  $T_c$  superconductors also referred to as the Wolleben effect.

The above describes but a few of the most important contributions of Rice to the field of strongly correlated Oxide systems. These contributions have helped greatly in the interpretation of experimental results, as guidelines for new interesting materials, as guidelines for new experiments and in general in the, although as yet limited, understanding of strongly correlated oxides. The Committee is convinced that these outstanding contributions will continue to play a central role in the study of strongly correlated materials.

## Hewlett-Packard Europhysics Prize

awarded for outstanding contributions to condensed matter physics

*date place of award area of physics prize winners*

- |      |            |   |      |           |  |      |            |  |
|------|------------|---|------|-----------|--|------|------------|--|
| 1975 | Bucharest  | Condensation of excitons<br>Victor S. Bagaev, Leonid V. Keldysh<br>Jaroslav E. Pokrovsky, Michel Voos | 1984 | Prague    | The scanning tunnelling microscope<br>Gerd K. Binnig*, Heinrich Rohrer*                                | 1992 | Prague     | Surface structures, dynamics and reactions<br>Gerhard Ertl,<br>Harald Ibach, J. Peter Toennies   |
| 1976 | Heidelberg | Liquid crystals<br>Wolfgang Helfrich  | 1985 | Berlin    | Experimental low dimensional physics<br>Jens Als-Nielsen, Michael Pepper                               | 1993 | Regensburg | Coherent phenomena in disordered conductors<br>Boris L. Altshuler, Arkadii G. Aronov,<br>David E. Khmel'nitskii, Anatoly I. Larkin, Boris Spivak |
| 1977 | Leeds      | Semiconductors<br>Walter E. Spear   | 1986 | Stockholm | Neutron spin echo spectroscopy<br>Ferenc Mezei   | 1994 | Madrid     | New molecular forms of carbon<br>Donald R. Huffman, Wolfgang Krätschmer,<br>Harold W. Kroto*, Richard E. Smalley*                                |
| 1978 | York       | Heterojunctions<br>Zhores I. Alferov  | 1987 | Helsinki  | Point-contact spectroscopy in metals<br>Igor K. Yanson   | 1995 | Telford    | Fundamental concepts in physics<br>Yakir Aharonov, Michael V. Berry  |
| 1979 | Paris      | Surface acoustic wave devices<br>Eric A. Ash, Jeffrey H. Collins, Yuri V. Gulyaev                     | 1988 | Budapest  | Discovery of high-temperature superconductivity<br>J. Georg Bednorz*, K. Alex Müller*                  | 1996 | Stresa     | Semiconducting organic polymer materials and the organic light emitting diode<br>Richard H. Friend   |
| 1980 | Leeds      | Calculating electronic properties of materials<br>O. Krogh Andersen                                   | 1989 | Nice      | Heavy fermion metals<br>Frank Steglich, Hans-Rudolf Ott<br>Gilbert G. Lonzarich                        | 1997 | Leuven     | The giant magnetoresistance effect in transition-metal multilayers<br>Albert Fert, Peter Gruenberg, Stuart S.P. Parkin                           |
| 1982 | Manchester | Experimental demonstration of quantized Hall resistance<br>Klaus von Klitzing*                        | 1990 | Amsterdam | The ab-initio calculation of molecular dynamics<br>Roberto Car, Michele Parrinello                     | 1998 | Grenoble   | Strongly correlated electron systems<br>T. Maurice Rice  |
| 1983 | Lausanne   | Atomic and solid hydrogen<br>Isaac F. Silvera   | 1991 | Exeter    | Organic metals, their superconductivity and novel magnetic properties<br>Klaus Bechgaard, Denis Jérôme |      |            |  |

No award was made in 1981

\* won the nobel prize for the same work