



# International Society for $\mu$ SR Spectroscopy

Newsletter No. 3 - February 2005

## Welcome from the President of ISMS, Robert Heffner

**A very Happy New Year to everyone in the muon community!**

I would like to draw your attention to several important Society issues.

◇ Please nominate deserving scientists for the prestigious **Yamazaki Prize**, to be awarded at our upcoming International  $\mu$ SR Conference in Oxford, England, August 8-12, 2005. The deadline for nominations is February 28, 2005 - please see page 7.

◇ In addition, three **Young Researcher Awards** will be given to students or first-time postdocs based on a paper submitted to the  $\mu$ SR05 Conference. To be considered the paper should be accompanied by a statement from the researcher's supervisor saying that the work is primarily that of the potential recipient. Winners will receive a monetary reward and Medal. Details will be available on the  $\mu$ SR05 website.

◇ The ISMS membership has approved the adoption of an **amendment to our Constitution**, adding a President-Elect to the Executive Committee and reducing the allowable consecutive terms of the President from two to one. The President-Elect will serve as a voting member of the Executive Committee, and assume the President's duties if the President is unable to serve. At the end of his/her three-year term, the President-Elect will automatically become the President for the next three years. This means that we will be electing both a President and a President-Elect in 2005; in 2008 we will choose only the President-Elect. This change was necessary to ensure continuity in the affairs of the Society.

◇ Speaking of elections, it is time to consider the slate of **ISMS Officers who will stand for election** to terms beginning August, 2005 (President, President-Elect, three regional Vice Presidents and Treasurer). Please contact me at [muonphysics@hotmail.com](mailto:muonphysics@hotmail.com) if you might be interested in serving, or would like to nominate someone else. Nominees will be asked to

submit a brief vita and a statement of their goals for the office. An announcement from the Nominating Committee will be forthcoming.

◇ There will be an International **Workshop on Muon Science Instrumentation (MSI-05)**, chaired by Prof. K. Nagamine, March 2-4, 2005, at KEK. MSI-05 will focus on advanced muon beams and new accelerators, and will bring together people from particle physics and low-energy muon physics. Future workshops in this series will focus more specifically on  $\mu$ SR issues, such as data acquisition, analysis and instrumentation.

◇ The **Facilities Subcommittee of the ISMS** had a very successful inaugural meeting which is described on page 6 by Thomas Prokscha (PSI). We wish to welcome two new members to this subcommittee, Isao Watanabe (Riken-RAL) and Tair Mamedov (JINR-Dubna). Dr. Prokscha also notes that PSI has achieved its highest surface muon intensity ever ( $2 \times 10^8 \mu^+/\text{mA}\cdot\text{s}$ ) at the muE4 beam line. Congratulations!

◇ I hope you have all have enjoyed at least some of the papers in the recently-published topical  $\mu$ SR issue of the **Journal of Physics: Condensed Matter (Vol. 16, No. 40, 13 Oct., 2004)**. These papers illustrate how  $\mu$ SR has contributed significantly to our understanding of condensed matter systems.

◇ Finally, please note the '**Chemistry Corner**' section on page 5, contributed by Prof. Paul Percival from Simon Fraser University, Canada.

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The International Society for  $\mu$ SR Spectroscopy

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## News from the regions . . .

### . . . from the Vice President - N. and S. America

On December 15, 2004 the TRIUMF H<sup>-</sup> cyclotron reached a major milestone. The date marked the 30<sup>th</sup> anniversary of the first extracted beam accelerated to 500 MeV. For over 20 years the TRIUMF cyclotron has been a reliable source of proton beams for muon production. Today, the cyclotron also feeds the experimental facilities of ISAC, which houses the  $\beta$ -detected nuclear magnetic resonance ( $\beta$ -NMR) apparatus. Continued operation of the TRIUMF cyclotron is crucial to the worldwide  $\mu$ SR program, since it is the only such facility in the Western Hemisphere and one of only two comparable sources of precious continuous-wave muon beams in the world. Indeed future muon beams for  $\mu$ SR are likely all to be of the pulsed variety, as new accelerator-based sources are apt to be linear accelerators or synchrotrons.

The Centre for Molecular and Materials Science at TRIUMF (which includes the  $\mu$ SR and  $\beta$ -NMR programs) is still awaiting word on funding for the period 2005-2010. The plan for this 5-year cycle includes the building of two new state-of-the-art high-luminosity positive surface-muon beam lines (see ISMS Newsletter No. 2). The M9A beam line, which is not currently being used for  $\mu$ SR experiments, will be completely rebuilt (this excludes the production target). The M20B beam line will also be reconfigured to provide a second simultaneous operating leg. This will be achieved using a fast electrostatic kicker to provide 'Muons On Request (MORE)', a method invented at TRIUMF, but first implemented at PSI. Both of these beam lines will be

outfitted with dual spin rotators and automated data acquisition/analysis systems. The plan has been favorably peer reviewed and presented to the National Research Council of Canada in February 2004. Unfortunately, the federal election in June 2004 stalled any decision on funding of the plan. Given that the current 5-year funding period ends on April 1, 2005, a decision is expected any day now. In anticipation of this decision, TRIUMF has requested specifications and placement of the order for the M9B spin rotators/separators in the 2005 fiscal year.

Several major repairs to the front-end of M20B will be made in the January-April 2006 shutdown. Due to crumbling concrete support blocks and a ground fault, quadrupoles Q1 and Q2 will be replaced. Additional work includes a cooling package upgrade to bending magnet B1. Other significant improvements of note include adding a high-timing front end to the dilution refrigerator on the M15 beam line. This, combined with the already completed upgrade to the positron detectors, will provide the world's first combined *low-temperature, high-field* (5 T)  $\mu$ SR spectrometer. At present, the maximum field of this spectrometer is limited to 2 T, due to a reduction in signal amplitude at higher fields.

During the TRIUMF Users' Group Annual General Meeting on December 8, 2004, a farewell reception was held for TRIUMF House, which is the guest house used by visitors to the laboratory. The University of British Columbia, which owns the land TRIUMF House sits on, plans to build condominiums

on the site. People gathered at TRIUMF House to say their goodbyes and to hear some of its long history. A new 35 room TRIUMF House opened on December 13, 2004 at a nearby location, which is still within walking distance to University village, public transportation and the TRIUMF laboratory. The new guest house maintains the warm cozy atmosphere of the old TRIUMF House, with many new conveniences, such as internet and cable vision connections in each room, and outside patios and gardens. For further details on the new TRIUMF House see [http://www.triumf.info/t\\_house/](http://www.triumf.info/t_house/).

Jeff Sonier.



The new TRIUMF guest house opened Dec. 13, 2004.

## . . . from the Vice President - Asia

### KEK-MSL Facility Status and Operation

The Meson Science Laboratory is the original facility using a pulsed muon beam for basic and applied research. At present, there are three channels producing muons for the Inter-University Experimental Program, including the Large Solid-Angle and Axial-Focusing Superconducting (Dai-Omega) channel which is now providing the world's strongest pulsed 4 MeV  $\mu^+$  beam.

In April 2004, when KEK was reorganised from National Laboratory to Agency, the KEK-IMSS Meson Science Laboratory became KEK-IMSS Muon Science Laboratory under Prof. Kusuo Nishiyama. A meeting of the Laboratory International Review Committee was held in June 2004, with committee members: Dr. A. Amato (PSI), Prof. D. G. Fleming (UBC), Dr. J.-M. Poutissou (TRIUMF, chair), Prof. K. Ueda (ISSP, U. of Tokyo), Prof. H. Yasuoka (ASRC, JAERI) and Prof. Y. Yamazaki (U. of Tokyo, RIKEN). The report has been submitted to the Director of the Institute of Materials Structure Science, Dr. Atsushi Koma, and concludes: *Overall the committee was very impressed by the accomplishments of the KEK-MSL group, by their enthusiasm for establishing a superb world-class muon facility at J-PARC, and believes that this group has a critical role to play in maintaining a science program at KEK and in the Japanese Universities both prior to and after the start up of J-PARC. The committee believes that the muon part of the Institute of Materials Science of KEK is providing Japan with unique opportunities and its integration in the Institute must remain a strong objective of KEK.*

### Construction of J-PARC.MSL

Construction of the Muon Science Laboratory (MSL) at the JAERI-KEK J-PARC Project is underway. The J-PARC neutron and muon centre will be known as the Material and Life Science Facility. First beam delivery will be in winter 2007. Because of budget limitations, the first phase of construction will produce a general-purpose superconducting muon channel and a part of the surface  $\mu^+$  channel. In order to review technical aspects of the design and construction of the MSL, a Technical Advisory Committee (MUTAC) meeting was held in December 2004. The committee members are Dr. J.-M. Poutissou (TRIUMF, chair), Dr. G. Heidenreich (PSI), Dr. C.J. Densham (ISIS), Mr. G. Clark (TRIUMF), Dr. N. Simos (AGS at BNL), Dr. K. Ueno (KEK), Dr. K. Tanaka (KEK) and Dr. T. Matsuzaki (RIKEN). Their report is in preparation.

### International Workshop on Muon Science Instrumentate (MSI-05)

The MSI-05 meeting will be held at KEK from 2-4 March 2005. It will be hosted by the JSPS Core-to-Core Program on Development of Advanced Muon and Positron Beams. The organizing committee is K.



*Status of the building construction for Muon Science Laboratory at J-PARC (December 1, 2004). The picture is looking from up-stream towards the neutron target station, in the foreground, several piles of 'built-in' iron blocks can be seen at the location of the MSL.*

Nagamine (KEK/UCR, Chair), A. P. Mills, Jr. (UCR), J.-M. Poutissou (TRIUMF) and R. H. Heffner (LANL). The topics of MSI-05 are Muons at High Intensity Hadron Accelerators, Advanced Muon Beam Generation, Other Particle Beams: positron, p-bar, etc., and Use of Advanced Muon Beams. The goal is bridge-making between low-energy muon science and high-energy muon particle physics and other particle beam communities. ISMS members are encouraged to participate.

### Highlights from the Inter-University Program

During the period from March - November 2004, 27 proposals from 15 institutions received muon beam time. Some of these had additional beamtime at RIKEN-RAL to obtain high-statistics data. Also, complementary to pulsed muon experiments at KEK-MSL, an experimental program with continuous muons is in progress at TRIUMF mainly using the decay  $\mu^+/\mu^-$  beam from the Japan-Canada superconducting muon channel built by the KEK-MSL group. Highlight experiments include:

- ◇  $\mu$ SR: magnetic phase diagram of the hole-doped  $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$  cuprate superconductor, K. Ohishi, I. Yamada, A. Koda, W. Higemoto, S. R. Saha, R. Kadono, K. M. Kojima, M. Azuma and M. Takano.
- ◇ Muon catalyzed fusion ( $\mu$ CF): discovery of ortho-para effect in muon catalyzed fusion of gas, liquid and solid  $\text{D}_2$ , H. Imao, K. Nagamine, K. Ishida, N. Kawamura, T. Matsuzaki and Y. Matsudaet.
- ◇ Fundamental physics: generation of thermal and epithermal muonium from hot tungsten foil and porous tungsten, H. Miyadera, K. Nagamine, K. Shimomura, H. Tanaka, Y. Ikedo and K. Nishiyama.

Ken Nagamine



## . . . from the Vice President - Europe

ISMS is now firmly established as an extremely useful channel of communication between members of the global MuSR community. However, it is inevitable that some issues will arise that need to be addressed on a regional scale. This is particularly true in Europe where a large MuSR user community is spread thinly across several countries, and where the scientific agenda is defined by both Europe and the individual nations. In this context a major step towards providing a platform for discussion of MuSR spectroscopy in Europe was taken on 7 October 2004 when the inaugural meeting of ISMS-Europe was held at PSI in Switzerland.

Bob Cywinski, the current Vice-president of ISMS and President of ISMS-E, invited national delegates from across Europe to attend the inaugural meeting. Representatives from France, Germany, Greece, The Netherlands, Italy, Portugal, Switzerland, Spain and the UK converged on PSI for a lively and productive meeting. The tasks of defining the role of ISMS-E and setting the framework for the Articles of Association were high on the agenda. It was universally agreed that ISMS-E would provide an appropriate focus for action on all issues related to muon beam science in Europe, particularly with respect to identifying the needs of the user community, collaborating with facilities to optimise their use, and assisting with the coordination of the development of MuSR instrumentation. It was also decided that ISMS-E is the appropriate body to promote the use of MuSR techniques within Europe, to disseminate information on MuSR to the wider scientific community and to support young muon scientists. Each national representative at ISMS-E was charged with securing delegate status to the newly convened ISMS-E committee from their own national communities, if necessary by holding local elections. In the spirit of collaboration with muon facilities representatives from PSI (Thomas Prokscha) and ISIS (Philip King) were invited as observers to the meeting, each presenting a thorough overview of progress and plans at their respective institutions. Robert McGreevy (RAL) also attended part of the meeting in his role as coordinator of the EU FP6 Neutron and Muon Integrated Infrastructure Initiative (NMI3, see [http://neutron.neutron-eu.net/n\\_nmi3/](http://neutron.neutron-eu.net/n_nmi3/)). We are grateful to NMI3 for providing financial support for the ISMS-E meeting. The ISMS-E was followed by the first joint meeting of ISMS-E, NMI3 and the European Neutron Scattering Association (ENSA). All European MuSR spectroscopists are encouraged to discuss any aspect of ISMS-E with their national delegates (*see photograph*). Should any other national groups wish to send delegates to future ISMS-E meetings please contact Bob Cywinski directly.

It is also important to note that another significant milestone for European MuSR was reached just

before Christmas. Perhaps the best known of all European MuSR scientists, Professor Alex Schenck, reached the age of retirement. Because of Alex's youthful appearance and unwaning enthusiasm, many of us find this very hard to believe. Nevertheless we send Alex our very best wishes for a long and enjoyable retirement, and thank him for the major contribution he has made to our scientific field.

At **ISIS**, the MuSR spectrometer detector array has recently been replaced leading to a doubling of the instrument data rate. A new high-temperature (1500 °C) furnace for EMU has also been demonstrated, and facilities for making AC-susceptibility measurements alongside taking muon data are now available. This month ISIS will hold a training course for young researchers who are new to the muon technique. Seventeen students will spend a week learning about the muon method and performing experiments on the ISIS muon instruments, equipping them for future muon beamtime. Finally, we are still awaiting results of a large grant application to provide a new high field (5 T), high data rate muon instrument at ISIS. As part of the proposal process, the ISIS muon facility was reviewed by a small group of external experts. The review report is strongly supportive of the proposed plans to develop the facility, recognising both the historic contribution that muons have made across a broad range of science areas and the likely future potential of an upgraded facility – this is very good news for the muon technique in general!

*Bob Cywinski.*



*Happy smiling faces at the inaugural meeting of ISMS-E at PSI on 7 October 2004. From left to right: Thomas Prokscha (PSI, observer), Pierre Dalmas de Reotier (France), Paul Gubbens (Netherlands), Philip King (ISIS, observer), Jochen Litterst (Germany), Sue Kilcoyne (UK), Alex Lappas (Greece), Bob Cywinski (President ISMS-E), Roberto de Renzi (Italy), Jose-Louis Garcia-Munoz (Spain), Dierk Herlach (Switzerland), and João de Sá Campos Gil (Portugal).*

## Chemistry Corner

### Chemistry in a pressure cooker

Paul Percival, TRIUMF and Department of Chemistry, Simon Fraser University, Burnaby, B.C., Canada V5A 1S6.

**What is the connection between safe destruction of chemical weapons, the development of next-generation nuclear power stations and bacteria which live only near undersea volcanic vents? Answer: they all involve chemistry in superheated water, i.e. water at high temperatures and pressures. The chemistry of life, combustion and radiolysis all depends on free radicals, but the means to study these highly reactive intermediates under extreme hydrothermal environments is very limited. In fact,  $\mu$ SR and avoided level-crossing resonance (ALCR) are unique in their ability to characterise free radicals in such conditions.**

The difficulty of studying transient species in a hydrothermal environment has resulted in some surprising technological 'blind spots'. Consider what is known about the chemistry of pressurized water nuclear reactors. The primary cooling loop typically operates at 320 °C and 100 bar. Radiolysis produces highly reactive H, OH, and  $e_{aq}^-$  and thence  $H_2$ , HOOH and/or other stable materials depending on particular water additives. Corrosion of fuel cladding and piping is a serious concern, but detailed mechanisms have yet to be elucidated. In fact the models of water radiolysis used by reactor engineers all depend on extrapolation of data collected at much lower temperatures: reaction rate constants for H atoms and other transients have only been measured to about 200 °C! This is particularly shocking when one considers that 'next-generation' nuclear power stations are being designed to operate at 500-600 °C.

The lack of fundamental chemical data also applies to supercritical water oxidation (SCWO), a promising technology for destruction of hazardous wastes. The Chemical Weapons Convention requires the U.S.A to destroy over 30,000 tons of chemical weapons by April 2007, but the timetable has been much delayed by public resistance to the plans to use high temperature incineration. The problem with this method is that you start with a controlled quantity of flammable liquid, mix it with air, expose it to a flame, and hope that by the time the very large volume of gaseous products reaches the smoke stack there is nothing nasty left over. Would you want thousands of tons of sarin and VX nerve agents burned in your neighbourhood? An alternative is SCWO. The toxic organic material is still burned (oxidized), but it is done under water in a sealed vessel – a giant pressure cooker. The necessary engineering technology has been developed over the past decade, but the chemical details are far from clear. In particular, combustion involves free radical intermediates whose properties and behaviour under hydrothermal conditions are mostly unknown.

Muons are particularly effective at probing chemistry in extreme environments, and over the past 10 years we have developed the means to measure Mu rate



*Muon's-eye view of the target cell, which is made of titanium and can withstand pressures of 500 bar at temperatures up to 500 °C. The dome shaped window is over 2 mm thick.*

constants in water from standard temperature and pressure to 450 °C and 400 bar [1]. In addition we can detect the free radicals formed by Mu addition to organic solutes, introduced as starting materials or the products of hydrothermal reactions [2]. Recently we have developed apparatus to enable ALCR studies of these radicals [3], which permits unambiguous identification and characterization of free radicals under hitherto unknown conditions.

*This work would not be possible without Jean-Claude Brodovitch (who designed the high-pressure high-temperature cell) and the assistance of Khashayar Ghandi, Iain McKenzie and Brett McCollum.*

[1] K. Ghandi et al., *Physica B*, 326 (2003) 55.

[2] K. Ghandi et al., *J. Am. Chem. Soc.*, 125 (2003) 9594.

[3] P.W. Percival et al., unpublished results (2004)

## News from the ISMS Facilities Subcommittee

The main scope of the ISMS Facilities Subcommittee is the exchange of information between the facilities and to keep facility members up to date about developments and plans, so that the facilities can benefit from one another. For this purpose it is planned that the Subcommittee meets annually in the future.

The Committee had its 1<sup>st</sup> meeting at PSI on 29-30<sup>th</sup> April 2004. The main topics were the  $\mu$ SR facility overviews of KEK-MSL/J-PARC, ISIS, PSI and TRIUMF, as well as presentations and discussions on future hardware and software developments. Potential synergies between facilities were identified: common development of Data Acquisition (DAQ) soft- and hardware for muon and neutron facilities are currently being pursued at ISIS where the integration of muon and neutron users is well advanced. Such cooperation is planned for the new muon/neutron facilities at J-PARC as well. At TRIUMF and PSI similar new VME-based front-end hardware and Midas as DAQ system will lead to a partial convergence of DAQ hardware and software infrastructure. Thus, the distribution of knowledge concerning the individual R&D efforts at each facility will certainly allow for the diffusion of technical innovation in the field.

A multitude of developments are currently going on at the facilities. Sample environment improvements focus on the extension of experimental parameters and tools: i) high magnetic fields (HF-MuSR, 10 T at PSI and 3-5 T at ISIS), ii) higher pressures (20kbar, PSI), iii) higher temperatures (1800 K, ISIS), and iv) ac-susceptibility combined with MuSR at ISIS. The fraction of beamtime requests at ISIS requiring external stimulus (RF, E-fields etc.) significantly increased during the last 5 years from 10% to 35%

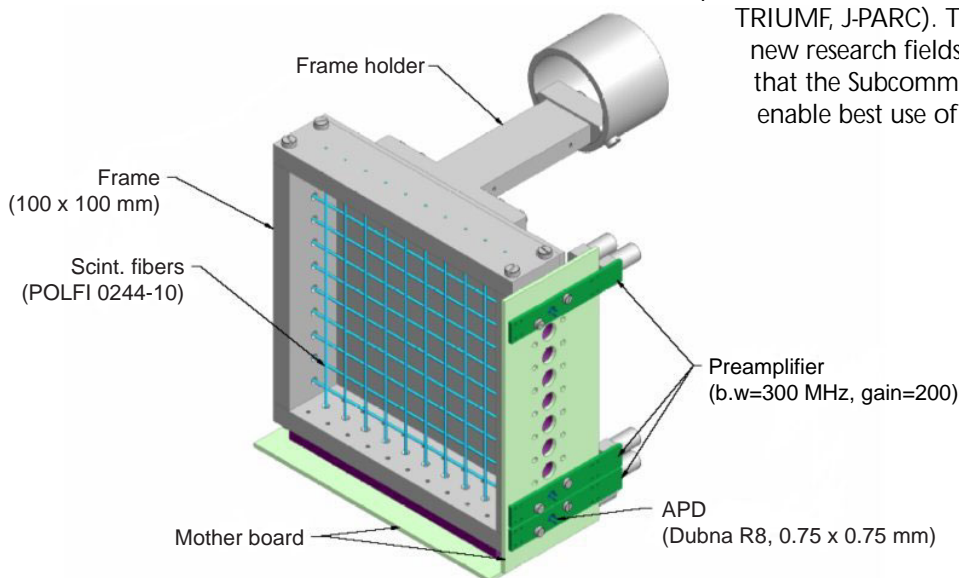
indicating that this kind of experiment is becoming increasingly important.

On the detector side avalanche photo diodes (APD) are being developed at PSI for operation in high magnetic fields, in collaboration with a group at JINR/Dubna and motivated by the HF-MuSR project. Positron tracking and position information in general is currently being investigated at all facilities by either use of Si strip/pixel detectors and/or highly segmented spectrometers. The main motivation for these developments is the capability of higher rate measurements and moreover it will allow the use of smaller samples.

Data formats and data analysis programs are presently determined by local considerations. Therefore, a common data format for the  $\mu$ SR facilities appears to be very unlikely. However, in order to facilitate data exchange between the facilities and between the neutron and muon communities the Subcommittee suggests a common exchange data format. Nexus would be best suited for data exchange with neutron facilities; ISIS is already using Nexus, soon to be followed by PSI. An exchange data format shall be identified at the next Subcommittee's meeting. Furthermore, the Subcommittee plans a collection and overview of  $\mu$ SR data analysis software that will be published on the Subcommittee's web page <http://lmu.web.psi.ch/isms/>. Whereas existing analysis programs are partly difficult to use and to run on different operating systems, up-coming developments should take into account easy portability and flexibility.

Diverse large projects demonstrate the ongoing advancement of the  $\mu$ SR technique (HF-MuSR, high-intensity  $\mu$ E4 muon beam for low-energy muon production at PSI, new muon beam lines at TRIUMF, J-PARC). These activities will open new research fields for  $\mu$ SR and we hope that the Subcommittee can contribute to enable best use of these new facilities.

*Thomas Prokscha, PSI*



*Beam profile monitor with APD readout developed at PSI. The detector was successfully used to measure the muon beam spot in a 5 T solenoid.*



# 山崎



**Professor Toshimitsu  
Yamazaki**

was born in 1934 and graduated from the University of Tokyo.

His innovation and creativity have produced many new developments in intermediate-energy, nuclear-particle and condensed matter physics.

He pioneered the application of  $\mu$ SR to solid-state physics, introducing in the late 1970's the zero-field relaxation technique, which is based upon the theoretical treatment of Kubo and Toyabe. This technique has become a distinguishing capability for  $\mu$ SR and has revolutionized the role of  $\mu$ SR in condensed matter studies. In addition, his influence has resulted in the spread of the  $\mu$ SR technique to facilities in North America, Europe and, of course, Japan.

His research activities cover nuclear structure spectroscopy, meson exchange effects in magnetic moments, hypernucleus spectroscopy with stopped kaons, deeply bound pion spectroscopy in nuclear matter, and antiprotonic helium atom spectroscopy.



The Executive Committee of the  
**International Society for  $\mu$ SR Spectroscopy**  
is pleased to announce the call for nominations for

## **THE 2005 ISMS YAMAZAKI PRIZE FOR $\mu$ SR SCIENCE**

The \$3000 Toshimitsu Yamazaki prize is made available by ISMS every three years to any scientist for outstanding, sustained work in  $\mu$ SR science with long-term impact on scientific and/or technical  $\mu$ SR applications. The 2005 prize will be awarded at a special ceremony at the International Conference on  $\mu$ SR, to be held in Oxford, UK.

Nominations for the prize will be considered by a Selection Committee which consists of the President and three Vice Presidents of the ISMS, together with authorities representing the major scientific disciplines to which  $\mu$ SR contributes. The Committee includes acknowledged experts both inside and outside the  $\mu$ SR community.

Nominations for the 2005 ISMS Toshimitsu Yamazaki Prize may be submitted by scientists as individuals or on behalf of a Group. To establish a high standard it is necessary that the Committee receive nominations that demonstrate a sustained, long-term impact on particular fields of science using  $\mu$ SR and/or on substantial development of innovative  $\mu$ SR-related techniques or technology. Nominations should include a cover letter describing the motivation for the award, a brief curriculum vitae of the nominee and a short list of major, relevant publications. At least two additional supporting letters of recommendation should be included. Nominations will be treated in confidence, and will be acknowledged, but no further communication from the Selection Committee will be sent.

Nominations should be sent before February 28th, 2005, to the Chairman of the Selection Committee:

**Dr. Robert H. Heffner, President ISMS**  
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Los Alamos, NM 87545 USA  
Telephone: +1 505 667 4838  
Fax: +1 505 665 7652  
Email: [muonphysics@hotmail.com](mailto:muonphysics@hotmail.com)

## Other News and Information

### $\mu$ SR 2005

The next **International Conference on Muon Spin Rotation, Relaxation and Resonance** will be held in Oxford at St. Anne's College, 8-12 August 2005. Information on the conference can be found at the conference web-site: <http://musr05.physics.ox.ac.uk>

In addition to the main conference, there will be a student afternoon on Sunday 7th August, and a satellite workshop on pulsed muon techniques from 12-13 August.

The deadline for abstracts and reduced rate registration is 1st May 2005, with a final registration deadline of 15th June 2005. On-line registration will be available shortly from the conference website.

**$\mu$ SR2005**  
10<sup>th</sup> International Conference on  
Muon Spin Rotation, Relaxation and Resonance

**Scope:** all aspects of the theory, practice and applications of muon spectroscopy in molecular, condensed matter and materials science.

**Topics:** to include muon studies in magnetism, superconductivity, organics, semiconductors, chemistry and charge transport, as well as muon technique and facility developments.

**Deadlines:** abstracts and reduced rate registration: 1<sup>st</sup> May 2005.  
Final registration deadline: 15<sup>th</sup> June 2005.

**8<sup>th</sup> - 12<sup>th</sup> August 2005, Oxford, UK**  
<http://musr05.physics.ox.ac.uk>

CCIRC ISIS



### Another $\mu$ SR award!

Dr. Iain McKenzie of Simon Fraser University (SFU, Burnaby, Canada), has won the SFU Governor General's Gold Medal in science for being the top graduate student. Iain uses muonium-labelled organic radicals to study mass effects on the structure and dynamics of molecules. Very many congratulations to him.

### Comments on this newsletter?

The ISMS newsletter will be distributed twice per year, to inform the  $\mu$ SR community of ISMS activities, and to provide other information and news of interest to community members. We would welcome comments and thoughts on the content and distribution method - please email the Secretary, Philip King, at [isms@rl.ac.uk](mailto:isms@rl.ac.uk) if you have suggestions.

### Facility Proposal Deadlines and Contact Details

#### ISIS

Deadlines: 2 per year - 16th April and 16th October  
Contact: Philip King ([philip.king@rl.ac.uk](mailto:philip.king@rl.ac.uk))  
<http://www.isis.rl.ac.uk/muons/>

#### KEK

Deadline: 2 per year; contact Kusuo Nishiyama  
Contact: Kusuo Nishiyama ([kusuo.nishiyama@kek.jp](mailto:kusuo.nishiyama@kek.jp))  
<http://msl-www.kek.jp>

#### PSI

Deadline: 1 per year - next one is November 2005  
Contact: Dierk Herlach ([dierk.herlach@psi.ch](mailto:dierk.herlach@psi.ch))  
<http://lmu.web.psi.ch/>

#### TRIUMF

Deadline: please contact Syd Kreitzman  
Contact: Syd Kreitzman ([syd@triumf.ca](mailto:syd@triumf.ca))  
<http://musr.triumf.ca/>

