International Society for μSR Spectroscopy

Newsletter No. 18 – March 2020

Greetings from the President of ISMS

I am very pleased to inform you in this newsletter about the winner of the prestigious Yamazaki Prize for μSR Science 2020. The Prize Selection Committee, chaired by me and consisting of members of the ISMS Executive Committee, made the decision after evaluation of the excellent nominations that were submitted by January 31st. The Prize will be presented during the 15th International Conference on Muon Spin Rotation, Relaxation and Resonance (μSR2020).

The present situation with the new coronavirus (COVID-19) is already causing some restrictions on the μSR user programs at the international μSR facilities. At the moment it is not possible to predict how the situation will evolve in 2020. I very much hope that the pandemic will soon relax, but drawing a parallel to the SARS pandemic in 2003, we may expect a duration of at least half a year.

In the last year, ISMS continued the financial support of muon schools and workshops to help young scientists to attend these kinds of meetings. The International Advanced School on Muon Spectroscopy took place at ISIS between August 15th and August 22nd, 2019. The contribution of ISMS of € 3000 to the school was used to support the participation of 10 applicants, out of a total of 45 attendees. I warmly thank all of you who made a donation to ISMS to sponsor this event. The summaries of the lectures are now being edited and they will be compiled in the book *Muon spectroscopy: an introduction*, published by Oxford University Press. The earnings of the book are foreseen to be transferred to ISMS, which will help to continue the financial support of the society's activities to promote the next generation of muon scientists. As in previous years, ISMS sponsored the Neutron and Muon School & MIRAI PhD School at J-PARC, held between October 28th and November 2nd, 2019. It was the 4th edition of this school, attended by 30 young researchers. Organizers of other muon schools/workshops may contact me or someone else from the Executive Committee at any time, if they want to ask for support by ISMS.

The next μSR conference μSR2020 in Parma, Italy, organized by Roberto de Renzi/University of Parma and the ISIS muon group, is approaching. The conference will be held from July 6 – 10th, 2020, and registration and abstract submission are now open. For more information, please consult the conference web page http://www.musr2020.unipr.it. I am very much looking forward to our next exciting and stimulating meeting and I hope to see you all in Parma!

During μSR2020, the term of office of the current ISMS Executive Committee will end. It is then time to hand over the presidency to the current President-Elect, Prof. Tom Lancaster, Durham University. The new Officers to be elected are the President-Elect, Vice-President (Asia + Australasia), Vice-President (Americas), Vice-President (Europe and Africa), and Treasurer. Nominations or self-

nominations can be still submitted until March 31st, 2020, to Peter Baker (ISMS Secretary, peter.baker@stfc.ac.uk), including a Candidate's Statement.

Finally, we also need to look beyond µSR2020. I am asking anyone being interested and keen in hosting µSR2023 to inform me and to present an official bid at the Parma conference, where the site of the succeeding conference will be announced.

On behalf of the ISMS Executive Committee, I wish you all a happy and very successful year 2020!

Thomas Prokscha, President of ISMS

Yamazaki Prize for µSR Science 2020

The Yamazaki Prize for µSR Science 2020 will be awarded to Prof Stephen Blundell, University of Oxford, United Kingdom, in recognition of his significant contributions to µSR science, his excellent teaching activities in training and educating the next generation of µSR scientists, and for promoting µSR to a wider scientific community. The prize, which includes a sum of US$ 3000, will be presented to Prof. Blundell at a special ceremony on July 6th, followed by the prize lecture, at the 15th International Conference on Muon Spin Rotation, Relaxation and Resonance (µSR2020).

Professor Stephen Blundell from the University of Oxford has been using muons to study the behaviour of advanced materials for over 25 years. His research has focused on materials with interesting magnetic, superconducting or dynamical properties, using the full range of muon techniques to achieve this, and publishing over 380 research papers. Significant achievements have included advancing our understanding of iron-based superconductors, molecular magnets and he has also been one of the leading developers of tools to apply ab initio calculations to muon spectroscopy.

In addition to his scientific achievements, Prof Blundell has been a tireless advocate for muon spectroscopy throughout his career. He has been a regular feature at the ISIS muon training school and workshops around the world, has authored several books, for specialists and non-specialists alike, has supervised 24 PhD students and 11 post-doctoral researchers and has volunteered his time for a multitude of committees, conferences and media activities.

The award to Steve in 2020 follows the awards of Yasutomo Uemura (2005), Elvezio Morenzoni (2008), Jess Brewer (2011), Roberto De Renzi (2014), and Robert Kiefl (2017).

I warmly congratulate Steve on a very well-deserved award.

Thomas Prokscha, President of ISMS and
Chair of the Yamazaki Prize Selection Committee

The International Society for µSR Spectroscopy

c/o Peter Baker (Secretary), ISIS Facility, STFC Rutherford Appleton Laboratory, Harwell Campus, OX11 0QX, UK. Email: peter.baker@stfc.ac.uk Web: http://musr.org/isms

Progress report about the muon facility EMuS at CSNS

The EMuS study team continues the design and R&D efforts and to cope with the application of the CSNS-II upgrading project to the Chinese central government. Two design schemes, one as the baseline scheme and the other as the simplified scheme, have been developed. The baseline scheme is based on superconducting solenoids for the muon capture and transport, and the simplified is based on room-temperature magnets to collect and transport surface muons. As the simplified scheme is included in the CSNS-II project, the baseline scheme could be a future upgrade. A domestic review on the EMuS design was held on Nov. 1, 2019, and the review committee was from the CSNS management and experts, which approved the two-stage design of the EMuS. The R&D efforts supported by the National Natural Science Foundation of China have proceeded well. The units of the muSR spectrometer prototype were tested with a muon beam at ISIS with the great support from the ISIS colleagues, and the test results meet the design requirements. The prototype of the capture superconducting solenoid that is technically very challenging is well on the way to complete in 2020. The design of a target assembly prototype has been completed and the construction is to start soon.

For the promotion of muon science in China, the second workshop on EMuS multidisciplinary applications was held on Dec. 13-14, 2019 at University of Science and Technology of China (USTC), Hefei. USTC has been a major partner in the EMuS study from the very beginning. More than 70 participants attended the workshop, including three invited international experts. Both muSR users and physicists working in muon physics in China have been increasing in the last years. The EMuS user league was formed following the discussions during the workshop.

About the international collaboration, IHEP and PSI have signed a formal framework agreement on muon science collaboration in 2019. Two EMuS members were sent to PSI either for a postdoc or for a joint PhD study in 2019. We also received the visits at CSNS by Dr. Alex Amato from PSI in December 2019 and Prof. Yasutomo Uemura from Columbia University in January 2020.

Jingyu Tang

2nd Workshop on EMuS multidisciplinary applications held at USTC, Dec. 13-14, 2019

Update from the Centre for Molecular and Materials Science (CMMS) at TRIUMF

1) The installation of the new radiation-resistant quadrupole magnet doublet and the front-end of the M9 beam line will take place during the 2020 winter shutdown. Beam delivery to M9A is anticipated at the beginning of the summer 2020 beam period and this will be followed by commissioning of the beam line. User operations on M9A with the new, dedicated 3T spectrometer with APD detectors are anticipated for the summer 2021 beam schedule. The M9A surface muon beam line and spectrometer will be optimized for rapid sample characterization with user-friendly operation. The construction of the high-momentum M9H beam line is proceeding and commissioning is anticipated in 2023 with user operation commencing shortly thereafter.

2) SiPM detector development for μSR has reached a milestone with the successful beam testing of muon and positron counters for the 3T spectrometer project. Timing resolution of the muon counters is 70 ps and the timing resolution of the entire muon start – positron stop sequence is 210 ps, for the rather large positron detectors used in the 3T spectrometer. The SiPM configurations and front-end electronics used to produce this outstanding result will form the basis of systematically upgrading all the μSR spectrometers in future years. Graeme Luke (CAP Brockhouse Medal 2019), Jeff Sonier, Rob Kiefl, and Andrew MacFarlane were recently awarded a grant from the NSERC Research Tools and Instruments Grants Program for a ^{3}He cryostat for the NuTime spectrometer. This will be ready for user operation in fall 2021.

3) Many experiments on the DR spectrometer require zero magnetic field, which is difficult to produce in a superconducting magnet, especially after large magnetic fields have been applied. Starting in 2020 we will group all the zero field measurements on the DR together requiring B < 30 mG at the beginning of the beam period. Please indicate that you need precise zero field measurements on the DR when you are submitting your beam request.

4) There will be 5 weeks of ^{8}Li βNMR and one week of ^{31}Mg βNMR in 2020. The amount of beam time in 2018 and 2019 was reduced to 3.5 weeks of ^{8}Li βNMR and one week of ^{31}Mg βNMR due to a delayed startup of ISAC that resulted from personnel being shifted to tasks related to the completion of the Advanced Rare IsotopE Laboratory (ARIEL). ARIEL is TRIUMF's flagship multidisciplinary research facility and will broaden Canada's research capabilities in particle physics, nuclear physics, nuclear medicine, and materials science by tripling TRIUMF's output of rare isotopes for research upon completion in 2024. The βNMR facility will see an increase in beam time in the coming years, eventually reaching 15 weeks of beam per year upon the completion of ARIEL.

5) A new βNMR spectrometer is being constructed that will have in-sample-plane magnetic fields of up to 0.2 T and temperature down to 300 mK. The first stage, which involved rebuilding the βNQR beam line with new electrostatic optics and beam tuning diagnostics, was completed in the winter 2019 shutdown. The second stage, which will involve extension of the beam line past βNQR and installation of the mid-field magnet, will be completed in 2019 with commissioning in fall 2020.

6) We have been developing the high temperature capabilities of the βNMR facility. There is a cryo-oven on βNQR (10 to 450 K) that successfully ran in 2019. It is currently not

compatible with using the beam spot cameras, so should only be used for high temperatures, or when one has samples with large lateral dimensions. Modifications to increase the maximum operating temperature of the βNMR spectrometer to 400 K are ongoing and commissioning will take place in the summer 2020 beam time.

We ask that all users fill in the user survey for every experiment that they complete. This is the best way for us to track the problems that have affected your experiments and improve the facility. We are grateful to our users who have filled in the survey. Issues that have been highlighted include problems with temperature controllers and the auto-run program. CMMS staff have been working on these issues. https://forms.office.com/Pages/ResponsePage.aspx?id=EDUFwrOceUai049ELgO1h5fLuBhjcm1GhoMy7RNYkRJUQ0I2VVpXTVRSOVE1Sk9BSVNTMFU0WkxLRSQlQCN0PWcu

Iain McKenzie, Syd Kreitzman, and Gerald Morris

News from ISIS

International Advanced School in Muon Spectroscopy

The International Advanced School in Muon Spectroscopy, jointly organised by PSI, Oxford, and ISIS Muons, was held at the Rutherford Appleton Laboratory from 15th-23rd August 2019. This was the first school of its type since the 1998 Scottish Universities Summer School held in St Andrews. It was attended by more than 40 international researchers and 25 lecturers who covered the full range of topics in contemporary muon spectroscopy.

The lecture notes are available on the school website: https://www.isis.stfc.ac.uk/Pages/Muon-Spectroscopy-Advanced-School.aspx and the lecturers are working together on a textbook based on the school. This is being edited by Stephen Blundell, Roberto De Renzi, Tom Lancaster, and Francis Pratt. Lecture videos and other material based on the training school are being added to the online learning site: www.e-neutrons.org, along with other new content.

Long shutdown and moved proposal round

ISIS has postponed its planned long shutdown by four months to start at the beginning of 2021. The first change for users will be a proposal round deadline on 15th April 2020 that will offer around half the days available in normal ISIS proposal rounds. After an upgrade to the ISIS accelerator and the Target Station 1 neutron target, muon production should resume in early 2022. During the shutdown the RIKEN-RAL facility will be refurbished with new magnet power supplies, vacuum system, and other improvements. The first proposal deadline for muon experiments will be in October 2021.

New cold sample environment equipment

At the start of 2020 we have received a suite of three cryostats, two ^{3}He inserts, and two dilution fridges with four inserts to supplement existing equipment. Particular improvements should be seen in running experiments below 1K on EMU and HiFi as the time needed to change between samples will be reduced significantly. They are now being tested, commissioned, and starting to be used for users' experiments.

Muon spectroscopy computational project

In April a project shared between the ISIS muon group and the Scientific Computing Department of STFC will begin, intended to place the tools developed in recent grant funded projects at ISIS, Oxford, Durham, and Parma in a sustainable and easily used software framework. The tools are being used to find muon sites in molecular and extended structures, calculate ALC spectra, and study quantum effects.

A site calculation meeting will be held at RAL on 27th April and the registration site is: https://forms.office.com/Pages/ResponsePage.aspx?id=HDZmP36oWEGPYZnoLbPKyMQ71pk5eIJFjxfzfIGTHG5UQk41TTlJOURIMExCR05MNzFFMkY0QjlVRC4u. Further discussions are planned to be held at the MUSR2020 conference. If you have any questions or want to be involved in the project, please contact Steve Cottrell (stephen.cottrell@stfc.ac.uk).

Adrian Hillier

ISMS Executive Committee

President: ***Dr Thomas Prokscha, PSI, Switzerland***
President-elect: ***Prof. Tom Lancaster, University of Durham, UK***
Vice-president, Americas: ***Prof. Robert F. Kiefl, University of British Columbia, Canada***
Vice-president, Asia: ***Dr Akihiro Koda, KEK, Japan***
Vice-president, Europe, Africa: ***Prof. Rui Vilão, University of Coimbra, Portugal***
Treasurer: ***Dr Hubertus Luetkens, PSI, Switzerland***
Secretary: ***Dr Peter Baker, ISIS, UK***

If you have comments on any aspect of the ISMS, please contact a committee member.

Progress report on the μSR facility at RAON

RAON (Rare isotope Accelerator complex for ON-line experiments) is a multi-purpose research facility built around a rare isotope accelerator in Korea. It will offer diverse stable and rare isotope beams for research in nuclear physics, materials science, and biomedical science. The μSR facility is an essential part of the RAON complex and aims to provide a continuous wave surface muon beam with an intensity of more than 10^5/s and beam energy of ~4 MeV, ideal for materials research.

Conceptual designs of the muon production target, muon beamline, and μSR spectrometer were completed in 2019. Since 2019, the Hanyang University team (PI: Prof. Y.K. Kim) has been working on the technical design and R&D in close collaboration with RAON HQ (coordination) and RAON User Liaison Center.

In 2019, the RAON μSR team organized three short review meetings to examine the design concept and technical details. The first was held on April 4th in IBS HQ, Daejeon. Two international experts, E. Morenzoni and Y. Miyake visited IBS and gave overall comments on design schemes, including radiation, maintenance area, and electronics.

In the second review meeting held on October 25th at Chung-Ang University, Seoul, E. Morenzoni gave intensive lectures on μSR to the Chung-Ang and Hanyang University teams and reviewed the instrument R&D on muon production target, beamline, and beam dump.

On November 14th, A. Sato was invited to IBS HQ for the third meeting and made an in-depth review of the technical designs. Thanks to the feedbacks and comments from three experts, the RAON μSR team improved and partly confirmed the technical design.

In 2020, we plan to invite more experts to review meetings to keep pace with our construction schedule: all muon beamline components except for the spectrometer will be installed by the end of 2021. The muon beam will be tested with and without beam by 2023. At the moment, the R&D budget for constructing the μSR spectrometer is not secured. After the successful commissioning of the accelerator, we expect a new project to complete and open the μSR facility to users.

Wonjun Lee, Suheon Lee,
and Kwang-Yong Choi

Bird's-eye view of experimental facilities in RAON (top) and the real construction site as of January 2020 (bottom). The RAON construction status is being updated monthly in YouTube (https://www.youtube.com/watch?v=3ciQ0WeLbJo)

News from PSI

The Swiss Muon Source SμS looks back on a very successful year of user operation in 2019. More than 220 experiments could be performed on the five instruments in operation: GPD, GPS, LEM, HAL-9500 and DOLLY. 156 different users from 23 countries came along, with the largest foreign communities coming from the United Kingdom (10%) and Germany (9%). The number of new submitted proposals is more than encouraging: a new record total of 377 proposals were submitted during the year 2019, 199 of them for the recent submission deadline in December. As the total amount of beamtime is limited, this leads to an oversubscription for the different instruments ranging from 2.3 to 4.9 with DOLLY being the one with the highest oversubscription. As elaborated below, the installation of the new FLAME instrument proceeds well and once it is in full operation in 2021, it will take its share of the load of user experiments. However, as FLAME in πM3.3 will share the beam with the πM3.2 area, its operation will also reduce the available beamtime on GPS.

In the last years, the high intensity proton accelerator complex (HIPA) at PSI serving SμS was running for a reduced beam production period due to the upgrade of resonators in the cyclotron-injector and the installation of new neutron guides for SINQ. In 2020, HIPA resumes its normal production cycle with a maintenance phase from Christmas to mid-May and beam production for the rest of the year. The proton beam rate is however still limited to 2000 mA in 2020 due to availability of the resonators in the cyclotron-injector.

At the end of 2019, first tests of a slanted pion and muon production target at target station E were conducted with a maximum proton current of 1.6 mA. This target has a length of 4 cm for the proton beam, but a much larger effective surface compared to the traditional straight target. As predicted by simulations of our particle physicist colleagues, the attached secondary muon beamlines μE4, πE1, πE5 and πE3 show a strong increase in surface muon rates between 30 and 60%. Another advantage of the slanted target is its relative insensitivity to the proton beam position on the target which makes it much easier to operate than the old straight target. Therefore, it has been decided that the slanted target shall be used for the beam production cycle 2020.

Progress report on the FLAME project

The new μSR user facility instrument FLAME (FLexible and Advanced MuSR Environment) is under construction in the πM3.3 area of the HIPA complex at PSI where it replaces the old LTF instrument. FLAME is designed to possess vastly more experimental capabilities with respect to LTF. To name a few of its characteristics, FLAME will cover a broad temperature range from 20 mK to room temperature with magnetic fields from true zero fields smaller than 5 μT up to 3.5 T in longitudinal as well as transverse field geometry, it will allow measuring small samples with an area of a few square millimeters with practically no background due to an active veto system and it will have an estimated time resolution of 150 ps for high spectroscopic accuracy. In 2019, part of the infrastructure like e.g. a new local area crane, a permanent liquid nitrogen supply, a vacuum control system, an extended gallery for the electronic racks and a new experimental hutch were installed. The detector system based on silicon photomultiplier technology is ready for testing in the beam starting from June 2020. The design of the magnet system with an outer dry high homogeneity superconducting 3.5 T

magnet and an inner vector magnet for zero field compensation and weak transverse field experiments was finalized. The production of the magnet system is on its way and delivery is expected for July 2020. To guarantee fail-safe operation of the superconducting magnet, FLAME will be equipped with emergency power and an emergency cooling water system for the compressors of the pulse tube coolers. The delivery of the ^{4}He cryostat is foreseen for April and of the dilution fridge insert for September 2020. A vertical movement system for the cryostats to position the sample in the beam is in production. Site acceptance tests and commissioning of all components will take place this autumn and winter. Further testing and expert user experiments are foreseen for the first half of 2021 and user operation is planned for the second beam period of 2021.

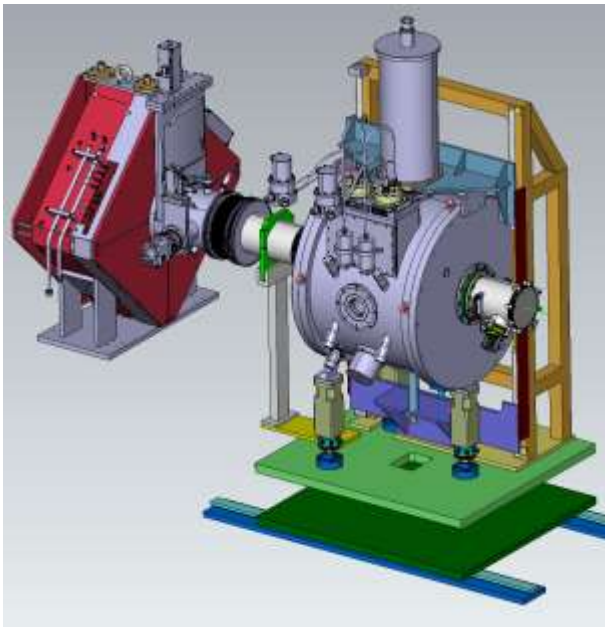

Figure 1: Design drawing of the FLAME instrument showing the main magnet and the ^{4}He cryostat with its vertical movement system.

Transverse polarization of the decay muon beam

Traditionally, transverse field μSR measurements on a high momentum decay muon beam like μE1 are complicated by the fact that the field has to be applied perpendicular to the momentum which leads to a deflection of the beam due to the Lorentz force. Accordingly, sample and detector positions always have to be adjusted with respect to the applied magnetic field. Following an approach from TRIUMF, we were recently able to obtain a 64% polarization of the muon beam by careful adjustment of the pion beam and an asymmetric excitation of quadrupole magnets in the μE1 beamline. This opens the possibility to perform transverse field μSR experiments on this high momentum beam by applying the magnetic field along the beam direction without the necessity to adjust sample or detector positions.

LEM: Heading towards higher rates and smaller samples

The above mentioned use of a slanted muon production target E in the last three weeks of 2019 had a very positive effect on the LEM rate. While simulations predicted an increase of 30% in surface muon rate for the μE4 beam line, we actually observed an even higher rate increase in the center of the beam on the moderator target, resulting in a 40% higher low-energy μ^+ rate. This is as good as a normal 6-cm target, which isn't usually used when the spallation source SINQ is in operation. The tests have been done at a reduced proton current of 1.6 mA. With beam on SINQ, 2.3 mA are possible in routine operation and shall be delivered again in 2022. At this current, and using a slanted target, we expect a record low-energy μ^+ event rate of 3k/s (11M/h) for a standard Ar/N_2 moderator (15k/s at the moderator), and even 60-70% higher rates for a Ne moderator (extraction voltage at the moderator limited to 12 kV).

So far, the LEM beam spot size required for LE-μSR experiments samples with a minimum size of 10x10 mm^2. With the installation of a 1-cm

collimator in front of the LEM start detector, it is now possible to study small samples of size 5x5 mm^2. Although the event rate drops to about 36% of the normal rate, the asymmetry from the sample is 2.4 times higher compared to normal beam conditions, thus overcompensating the rate loss. This also allows to mount 5 sample at the same time at different position of a standard sample plate, and to steer the beam from one sample to the next one. This causes a significant reduction of sample change time (a normal sample change needs 2-3 h). The minimum energy is about 3 keV instead of 1 keV for normal setup.

On the sample environment side good progress has been achieved in the remote operation of a high-voltage cage for biasing current/voltage sources up to +-12.5 kV, and in the design of a new low-temperature cryostat for a base temperature of ~2 K. Two of the new low-temperature cryostats will be built for more efficient sample change, and we are expecting delivery of the cryostats in 2021.

Alex Amato
Thomas Prokscha
Hubertus Luetkens

News from J-PARC

During the summer shutdown in 2019, the muon production target at the Materials and Life science experimental Facility (MLF), J-PARC was successfully replaced by a new one, where the first target assembly had a trouble on the coupler joint of the rotating shaft in 2018.

Besides, the restarting of the neutron target was delayed until the middle of December 2019, resulting that the user program in the 2019B term was rescheduled.

J-PARC is planning the 700 kW operation toward MLF in 2020. A test operation using 1 MW was conducted in July 2019; the proton beam of 1 MW is the designed goal of MLF. By using the μSR spectrometer having a solid angle of 20%, we observed a high flux muon beam of which the data taking rate reaches up to 1000 M events per hour.

Akihiro Koda

News from RCNP-MuSIC

This is the first opportunity to report our muon facility, MuSIC to the ISMS members. We are pleased to introduce our facility, group members and progress in the last few years.

The MuSIC (Muon Science Innovative Channel) muon facility is located in RCNP (Research Center for Nuclear Physics), Osaka University, Japan. RCNP provides continuous proton and various ion beams for nuclear physics research, radio-isotope production, muon and neutron productions, and so on. MuSIC provides positive and negative continuous muon beams (about 10^5 μ^+ /s @ 60 MeV/c) from 2017. Owing to a thick graphite muon production target covered with a large solid-angle capture

Fig. 1, Group photo after the first μSR experiment. Prof. S. Tajima (Osaka Univ.), students (Osaka Univ.), Dr. T. Ito (JAEA) and MuSIC staff members.

solenoid, an intense muon beam is successfully delivered to the experimental port from only 0.4 kW proton beam. Beamline commissioning and detector development have been done and the muonic X-ray measurements with Ge detectors were firstly performed for non-destructive elemental analysis of meteorite and archaeological investigations, transmutation and fundamental chemical analysis. For the positive muon, a μSR spectrometer (magnets, muon and positron counters, Microstat, and so on) was installed in the beamline and the first two μSR experiments were performed in Dec. 2018 (Fig. 1). The beam acceleration was suspended in Feb. 2019 and an upgrade of the proton accelerator is ongoing now.

Staff

The main staff members are Dr. Akira Sato, Dr. Dai Tomono and Dr. Yoshitaka Kawashima, and Prof. Mitsuhiro Fukuda (head of RCNP accelerator division), (Fig. 2). The MuSIC facility is also supported by local accelerator staff, students and scientists from Osaka Univ., KEK, KURNS, JAEA, J-PARC, RIKEN, and Univ. of Tokyo. In particular, we would like to thank Dr. W. Higemoto (JAEA), Prof. K. Shimomura and Y. Miyake (KEK) for their strong supports to start μSR at MuSIC.

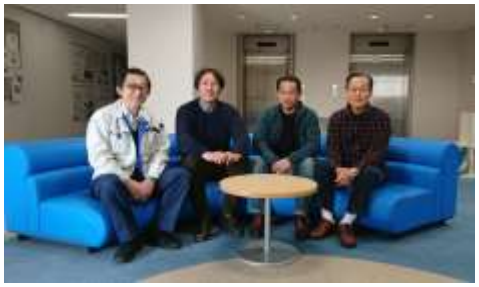

Fig. 2, MuSIC main staff members: (from right) Dr. Y. Kawashima, Dr. A. Sato, Dr. D. Tomono and Prof. M. Fukuda.

Facility upgrade

We are currently in a long shutdown. In this periods, an upgrade of the proton accelerator (the 44-year-old AVF cyclotron) and refurbishment works are undertaken. After the improvement, more intense (ten times more intense than before) and stable proton beam will be provided to the muon source. We expect the muon beam intensity will accordingly increase several times larger. In the middle of 2021, the muon beam will be resumed for users. Although some μSR and beamline instruments are still in development, we will be able to support various muon experiments flexibly by taking advantage of experiences about RI beams and samples in the nuclear physics facility.

Dai Tomono

Muon Facility Contact Details

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Upcoming book

NOVA is about to release a new book, "Modern Muon Physics -- selected issues", which is primarily about particle physics but has a 46-page chapter on μSR by Jess Brewer, outlining the history of μSR, many (if not most) of its techniques, and selected applications. If you pre-order from https://novapublishers.com/shop/modern-muon-physics-selected-issues/ and mention that Brewer sent you, you should get at least a 20% discount (30% if you do it promptly). Or you can contact Tricia Worthington at: contribcopy.hub@novapublishers.com to place an order.

Comments on this newsletter?

The ISMS newsletter will be distributed annually to inform the μSR 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 ISMS Secretary at peter.baker@stfc.ac.uk if you have suggestions.

Capitale Italiana della Cultura Parma 2020 la cultura batte il tempo

Con il Patrocinio del Comune di Parma

Università di Parma

Science & Technology Facilities Council
ISIS Neutron and Muon Source

Evento di aggiornamento scientifico.

The 15th International Conference on Muon Spin Rotation, Relaxation and Resonance

6 - 10 July, 2020 — Parma, ITALY

Student Day for Ph.D. students will be held on 5 July 2020

Invited Speakers

Bruce Gaulin, McMaster, Canada
Giacomo Ghiringhelli, Politecnico, Italy
Ioan Pop, Karlsruhe, Germany
Jorge Quintanilla, Kent, UK
Roberta Sessoli, Firenze, Italy
Martin Wilkening, TU Graz, Austria
Reiner Zorn, Julich, Germany

Conference Chairs

Roberto De Renzi (University of Parma, Italy)
Adrian Hillier (STFC-RAL, UK)

Honorary Conference Chairs

Cesare Bucci (University of Parma, Italy)
Steve Cox (STFC-RAL, UK)

Conference Contact

E-mail info.musr2020@unipr.it

Conference Website

https://indico.stfc.ac.uk/e/muSR2020

We are looking forward to welcoming you to Parma in July, so please mark your calendar and take advantage of our 'Early Bird' reduced registration fee (now extended until 31st March). Prepare your abstracts and check our invited speakers list, and don't miss the Conference Tour and Dinner. The student day will have a new format; we plan to give as many students as possible the chance to talk about their PhD research. For students taking part in this day, limited support to attend the conference may be available. Conference registration closes on 31st May.

We've received a number of questions concerning the conference and the current outbreak of novel coronavirus (COVID-19). Just to reassure everyone, that if towards the end of the registration period it becomes clear that the extent of the COVID-19 outbreak means that we'll be unable to run the conference as planned in 2020, we will ensure there's no loss to registrants on conference fees paid.

nature REVIEWS PHYSICS

IEEE CSC Council on Superconductivity

IEEE