



Positive Spin

The Newsletter of the ISIS Muon Group

Volume 7, Issue 1, Sept 2017

News

WELCOME

"Dear Colleagues. ISIS muon spectrometers are being continuously improved for the development of new science and their significant potential was recently acknowledged by the external review panel. That promising future will also be supported by the next generation of muSR users who can profit from the excellent training courses that will take place next March. FAP6 members will soon be working hard to select the best science which can come out from ISIS muons. Best wishes, Pietro."

STUDENTS

The muon group has welcomed several students since our last news letter. Claire Wilde, a sandwich student from the University of Bradford, is with us for a year to develop online

muon learning tools. We have also had a team of summer project students join us. Phattaraporn Singkanipa (Cambridge) simulated muon instruments with a view to improving EMU and MuSR. John Wilkinson (Birmingham) worked on accelerating fitting algorithms and Lydia Johnston (Nottingham) focused on improving negative-muon data analysis. Finally, Georgina Mordue (Oxford), was charged with analyzing molecular dynamics simulations. Thank you all for your contributions to group activities.

MUONS: THE REVIEW

This year, muons at ISIS were appraised by a panel of international experts whose remit was to look at the current state of muon research and how the spectrometers, and supporting

infrastructure, may be developed in the future.

The review panel's response was extremely positive, particularly with regard the new scientific opportunities afforded by the upgrade to the MuSR spectrometer (SuperMuSR), the high quality science produced, the future development plans to transfer RIKEN-RAL operation to ISIS and the promise shown by the 'MuX' negative muon initiative.

Comparative strengths of the facility on the international landscape were praised, as was demand for muon beam access over the past 5 years and strong collaborative relationships developed with the Mantid software team to advance data analysis capabilities. Further details will be available online soon

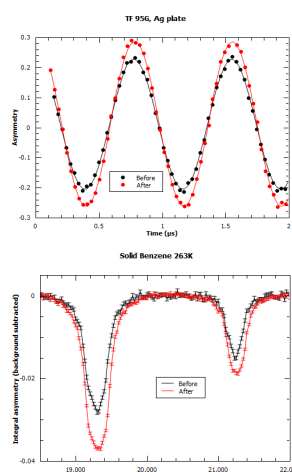
Instrumentation

POSITRON DEGRADERS

Over the summer positron degraders were fitted to the HiFi detectors to improve the asymmetry and figure of merit.

The asymmetry in low field has increased from about 22 to 29% (see top figure) with more modest improvement above 1.5T.

For most users this means an increase in beam slit width can be tolerated while keeping the rate the same yet improving data quality.



Any other business...

PUBLICATIONS Please inform your local contact and the ISIS User Office of publications arising from work on Muon instruments. A link to the work can then be included on the STFC publications database: <http://epubs.stfc.ac.uk>

CO-AUTHORS Please remember to include Muon Group staff as co-authors on publications when deemed appropriate

CYCLE DATES Forthcoming cycle dates

Science highlights

PAPERS RESULTING FROM ISIS WORK ARE AN IMPORTANT OUTPUT AND INCREASINGLY USED AS A MEASURE OF THE VALUE OF THE FACILITY. PLEASE KEEP US UP TO DATE WITH YOUR PUBLICATIONS. WE HAVE COMPILED LISTS FOR RECENT YEARS THAT ARE NOW AVAILABLE AT WWW.ISIS.STFC.AC.UK/GROUPS/MUONS/PUBLICATIONS PLEASE INFORM US IF ANY ARE MISSING.

- A HIGH-TEMPERATURE QUANTUM SPIN LIQUID WITH POLARON SPINS
- QUANTUM-CRITICAL SPIN DYNAMICS IN A TOMONAGA-LUTTINGER LIQUID STUDIED WITH MUON-SPIN RELAXATION
- COEXISTENCE OF MAGNETISM AND SUPERCONDUCTIVITY IN SEPARATE LAYERS OF THE IRON-BASED SUPERCONDUCTOR $\text{Li1-xFeX(OH)Fe1-ySe}$
- SLOW SPIN TUNNELING IN THE PARAMAGNETIC PHASE OF THE PYROCHLORE Nd25n2O7
- EXTENDING THE HYDROGEN STORAGE LIMIT IN FULLERENE
- SIGNATURE OF MULTIGAP NODELESS SUPERCONDUCTIVITY IN CaKFe4As4
- A COLLAPSE OF FERROMAGNETISM IN AN ORGANIC BASED MAGNET UNDER PRESSURE
- THE LOW-TEMPERATURE HIGHLY CORRELATED QUANTUM PHASE IN THE CHARGE-DENSITY-WAVE 1T-TAS2 COMPOUND

ISIS Access
For late 2018 and early 2019
next proposal deadline
16th April 2018

International Society for μSR Spectroscopy (ISMS)

To join please click [here](#) or email [Peter](#) (secretary)

A Date For The Diary
ISIS Muon Training School
Registration will open soon [here](#)
19th - 23rd March 2018

Dates for your diary

- ISIS PROPOSAL DEADLINE: 16 APR 2018
- THE 9TH AONSA/THE 2ND NEUTRON AND MUON SCHOOL 16TH NOV 2017
- ISIS MUON TRAINING SCHOOL 19TH-23RD MARCH 2018

Further information: [Muon Group Homepage](#) - [Group Members](#) - [HiFi](#) - [MuSR](#) - [EMU](#) - [ARGUS](#)

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