

# Muon Spectroscopy User Meeting: Future Developments and Site Calculations

*16-17 July 2018;*

*The Cosener's House, Abingdon, UK*

## **Monday, July 16<sup>th</sup>**

### **10:15 Refreshments**

Session 1 RIKEN-RAL Muon Facility

Chair: Francis Pratt

10:45 Welcome

*Philip King (STFC and RIKEN-RAL)*

11:00 'Initiation and the earliest history of RIKEN-RAL Muon Facility'

*Ken Nagamine (KEK)*

11:20 'μSR at the RIKEN-RAL Muon Facility from 1994'

*Isao Watanabe (RIKEN-RAL)*

11:40 'Particle/nuclear/atomic physics experiments by RIKEN'

*Katsu Ishida (RIKEN-RAL)*

12:00 'Exploiting the unique capabilities of the RIKEN-RAL beamline:

Elemental Analysis and Electronic Irradiation'

*Adrian Hillier (STFC)*

12:20 'RIKEN-RAL muon facility for energy materials research'

*Jun Sugiyama (Toyota)*

12:40 Discussion

### **13:00 Lunch**

14:00 Group photograph



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**ISIS**

- Session 2    User Meeting – Facility Developments    Chair: Pabitra Biswas
- 14:15        ‘Facility Developments’  
*Adrian Hillier (STFC)*
- 14:45        ‘Super-MuSR’  
*Peter Baker (STFC)*
- 15:30    Refreshments**
- 16:00        Other news from the facility    Chair: Adrian Hillier  
*Updates on RIKEN-RAL refurbishment project (Beth Evans); new sample environment equipment (Steve Cottrell); data analysis software (Anthony Lim); muon impact brochure (Mark Telling); future laser opportunities (Koji Yokoyama); muons in EU SINE2020 project (Matteo Aramini); towards an ultra-low temperature muon facility (Pabitra Biswas / Chris Lawson); future detector technologies for  $\mu$ SR (Dan Pooley)*
- 17:10        Discussion
- 17:30        Early Career Presentations (each 10 minutes)    Chair: Koji Yokoyama
- 18:30        Close
- 19:30    Dinner**

## Tuesday, July 17<sup>th</sup>

Session 3 Science Opportunities with SuperMuSR Chair: Peter Baker

- 09:00 'Future shocks: opportunities in magnetism with Super-MuSR'  
*Tom Lancaster (Durham)*
- 09:30 'Beyond the Kubo-Toyabe and stretched exponential functions: how  $\mu$ SR can reveal spatial magnetic correlations'  
*Pierre Dalmas de Reotier (CEA)*
- 10:00 'SuperMuSRConductors: what u can do with for higher resolution'  
*Roberto De Renzi (Parma)*
- 10:30 'Designing materials for all solid-state batteries'  
*Serena Corr (Glasgow)*

### 11:00 Refreshments

Session 4 Site Calculation 1 Chair: Adam Berlie

- 11:30 Project updates  
*Tom Lancaster (Durham) and Roberto De Renzi (Parma)*
- 11:40 'Computer Simulations for Interpreting  $\mu$ SR Experiments: Beyond DFT'  
*Leandro Liborio (STFC)*
- 12:00 'Strain-induced effects in single crystal  $\alpha$ - $\text{RuCl}_3$ '  
*Franz Lang (Oxford)*
- 12:20 'How the Muon Senses Ordered Cu Spins in  $\text{YBa}_2\text{Cu}_3\text{O}_6$  - A Supercell Approach by DFT Calculations'  
*Irwan Ramli (RIKEN)*
- 12:40 'Candidate muon stopping sites in  $\text{NaFe}_{1-x}\text{Ni}_x\text{As}$  and Quantum effects within an anharmonic approximation'  
*Ifeanyi Onuorah (Parma)*

### 13:00 Lunch

Session 5 Site Calculation 2 Chair: James Lord

- 14:00 'Superconducting Gap Symmetry in Organic Superconductor  $\lambda$ -(BETS) $_2$ GaCl $_4$  studied by  $\mu$ SR and DFT'  
*Dita Puspita Sari (Shibaura)*
- 14:20 'A Revisit to the Ordered State of Cu-Spins in  $\text{La}_2\text{CuO}_4$  Simulated by DFT - Quantum Approach to Muon Sites'  
*Muhammad Redo Ramadhan (RIKEN)*
- 14:40 'Muon sites in spin ladders and skyrmion-hosting materials'  
*Ben Huddart (Durham)*

15:00 'CalcALC: a user tool for predicting and interpreting ALC and QLCR spectra'  
*Francis Pratt (STFC)*

**15:20 Discussion and Close**