



York-Tohoku-Kaiserslautern Research
Symposium on
“New-Concept Spintronics Devices”

Programme

21-23 June 2017

Departments of Physics and Electronics, University of York



Day 0 (Tuesday, 20 June)

- 18:45 **Departure from Pavilion Hotel for welcome dinner** *Entrance,
Pavilion Hotel*
Bus transportation to be arranged for the guests staying at the Hotel.
- 19:00 **Welcome Dinner** *Monkbar Hotel*
N.B. Overseas guests only.
- 22:00 **Departure from Monkbar Hotel for Pavilion Hotel** *Entrance,
Monkbar Hotel*
Bus transportation to be arranged.

Day 1 (Wednesday, 21 June)

- 08:00 **Departure from Monkbar Hotel** *Entrance*
- 08:15 **Departure from York Pavilion Hotel**
Bus transportation to be arranged for the guests staying at the Hotel.
- 08:30 **Registration** *Entrance,*
Exhibition
Centre
- 09:00 **Opening Remarks** *P/L 002*
Chair: Gonzalo Vallejo-Fernandez
Prof. Kevin O'Grady (UK Principal Investigator, University of York)
Prof. Brian Fulton (Dean of Science, University of York)
Prof. Thomas Krauss (Strategy Champion Technologies for the Future, University of York)
- 09:30 **Session 1: Magnonics and Spin Dynamics** *P/L 002*
Chair: Gonzalo Vallejo-Fernandez
Prof. Burkard Hillebrands (Technical University of Kaiserslautern)
"Physics and applications of focused spin-wave beams and caustics"
Dr Stuart Cavill (University of York)
"Effect of symmetry on strain induced vortex core translation"
Prof. Evangelos Papaioannou (Technical University of Kaiserslautern)
"Efficient spintronic terahertz emitters based on epitaxially grown Fe/Pt bilayers"
- 11:00 **Tea and Coffee** *P/T 005 & 006*
- 11:30 **Session 2: Magnetic Recording** *P/L 002*
Chair: Keith McKenna
Dr Sameh Hassan (Seagate Technology)
"Technology future of HDD industry"
Prof. Markus Meinert (University of Bielefeld)
"Exchange Bias with antiferromagnetic MnN"
Dr Andrew Grier (Seagate Technology)
"HDD design for heat assisted magnetic recording"
- 13:00 **Lunch and Poster** *P/T 005 & 006*
- 14:00 **Session 3: New Materials for Spintronics** *P/L 002*
Chair: Seiji Mitani
Prof. Koki Takanashi (Tohoku University)
"Advanced spintronic materials based on ordered alloys"
Dr Vlado Lazarov (University of York)
"tba"
Dr Andrew Pratt (University of York)
"Effect of molecular orientation on spin transport in hybrid magnetic tunnel junctions"
- 15:30 **Tea and Coffee** *P/T 005 & 006*
- 16:00 **Session 4: Electrically Controlled Magnetisation** *P/L 002*

Chair: Evangelos Papaioannou

Prof. Josep Fontcuberta (Institute of Materials Science of Barcelona)

"Electric-field controlled metal-insulator transition in half-doped Manganites enhances electroresistance in BaTiO₃ ferroelectric tunnel junctions"

Prof. Stefano Sanvito (Trinity College Dublin)

"First principles multi-scale theory for current-driven magnetization dynamics"

Prof. Seiji Mitani (National Institute for Materials Science)

"Interface perpendicular magnetic anisotropy and its voltage control in Fe-based magnetic heterostructures"

- 17:30 **Return to York Pavilion Hotel / Monkbar Hotel and Stop at York Railway Station** Entrance,
Exhibition
Centre
- N.B. For all the participants.
Bus transportation to be arranged.
- 18:30 **Departure from York Pavilion Hotel** *Entrance*
- 18:45 **Departure from Monkbar Hotel for Informal Dinner**
- N.B. Speakers and invited guests only.
Bus transportation to be arranged.
- 19:00 **Informal Dinner** *Star Inn*
- N.B. Speakers and invited guests only.
- 22:00 **Return to Monkbar Hotel / York Pavilion Hotel**
- Bus transportation to be arranged.*

Day 2 (Thursday, 22 June)

08:15	Departure from Monkbar Hotel	Entrance
08:30	Departure from York Pavilion Hotel <i>Bus transportation to be arranged for the guests staying at the Hotel.</i>	
08:45	Registration	<u>Entrance,</u> <u>Exhibition</u> <u>Centre</u>
09:00	Session 5: Spintronic Memories <i>Chair: Stuart Cavill</i> <u>Prof. Jian-Ping Wang (University of Minnesota)</u> "Spintronics: A potential pathway to enable an exponential scaling for beyond-CMOS era" <u>Prof. Masafumi Shirai (Tohoku University)</u> "Enhancement of voltage effect on magnetic anisotropy in ferromagnetic thin films" <u>Prof. Yoshinobu Nakatani (University of Electro-Communications)</u> "Reducing the switching current with a Gilbert damping constant in nanomagnets with perpendicular anisotropy"	P/L 002
10:30	Tea and Coffee	P/T 005 & 006
11:00	Session 6: Antiferromagnetic Spintronics <i>Chair: Gerrit Bauer</i> <u>Dr Vincent Baltz (Spintec)</u> "Spin transport in antiferromagnets" <u>Prof. Takahiro Moriyama (Kyoto University)</u> "Spin torque and magnetoresistance in antiferromagnets"	P/L 002
12:00	Lunch and Poster	P/T 005 & 006
14:00	Session 7: Spin Caloritronics <i>Chair: Burkard Hillebrands</i> <u>Prof. Günter Reiss (University of Bielefeld)</u> "Thermally driven spin currents: spin Seebeck and tunneling magneto Seebeck effect" <u>Dr Ken-ichi Uchida (National Institute for Materials Science)</u> "Thermographic measurements of spin-caloritronic phenomena (tentative)" <u>Prof. Hiromi Yuasa (Kyushu University)</u> "Enhancement of spin mixing conductance and utilizing large spin Hall angle in spin Seebeck effect"	P/L 002
15:30	Tea and Coffee	P/T 005 & 006
16:00	Session 8: Spintronics in Oxides <i>Chair: Andrew Pratt</i> <u>Prof. Gerrit Bauer (Tohoku University)</u> "Spintronics with magnetic insulators" <u>Dr Dmytro Bozhko (Technical University of Kaiserslautern)</u>	P/L 002

- "Direct observation of dipolar-exchange magnon and phonon spectra
in arbitrary magnetized yttrium-iron-garnet films"
Dr Keith McKenna (University of York)
- "Understanding defects in metal oxide materials"
- 17:30 **Introduction to Core-to-Core Projects** P/L 002
- Chair: Andrew Pratt*
- Dr David Bowkett (EPSRC)
- 17:45 **Return to York Pavilion Hotel / Monkbar Hotel** Entrance,
- N.B. For all the participants. Exhibition
- Bus transportation to be arranged.* Centre
- 18:20 **Departure from Monkbar Hotel** Entrance
- 18:35 **Departure from York Pavilion Hotel for Symposium Dinner**
- N.B. Speakers and invited guests only.
- (Bus transportation to be arranged.)*
- 19:00 **Symposium Dinner** St Vincent Arms
- N.B. Speakers and invited guests only.
- 22:00 **Return to York Pavilion Hotel / Monkbar Hotel**
- Bus transportation to be arranged.*

Day 3 (Friday, 23 June)

- 08:15 **Departure from Monkbar Hotel** Entrance
- 08:30 **Departure from York Pavilion Hotel**
Bus transportation to be arranged for the guests staying at the Hotel.
- 08:45 **Session 9: MRAM and Beyond** P/L 002
Chair: Atsufumi Hirohata
- Prof. Hideo Ohno (Tohoku University)
"Analog spintronics memory"
- Dr Johan Swerts (IMEC)
"Perpendicular magnetic tunnel junction stacks with high annealing tolerance for high density memory applications"
- Dr Lucian Prejbeanu (Spintec)
"Ultrafast sub-ns MRAM concepts for cache applications"
- 10:30 **Tea and Coffee** P/T 005 & 006
- 11:00 **Session 10: Spintronic Devices** P/L 002
Chair: Koki Takanashi
- Dr Stuart Holmes (Toshiba Research Europe)
"Quantum transport in germanium structures"
- Prof. Benjamin Stadtmüller (Technical University of Kaiserslautern)
"Tracing optically induced spin currents in magnetic films and bilayer structures using CMOKE"
- Dr Damien McGrouther (University of Glasgow)
"Progress towards nanosecond time-resolved Lorentz TEM imaging of magnetic systems"
- Prof. Atsufumi Hirohata (University of York)
"Fabrication and characterisation of lateral and vertical spintronic devices"
- 13:00 **Final Remarks** P/L 002
Chair: Kevin O'Grady
- Prof. Hideo Ohno (Japanese Principal Investigator, Tohoku University)
Prof. Burkard Hillebrands (German Principal Investigator, Technical University of Kaiserslautern)
- 13:15 **Lunch** P/T 005 & 006
- 14:00 **Departure to York Railway Station** Entrance,
Exhibition
Centre
Bus transportation to be arranged. Train timetables can be found [here](#).
- 14:00 **Laboratory Visits and Discussion**