

EPSRC International Network for Spintronics: Early Career Researchers' Meeting
From Material Development to Novel Energy Efficient Technologies
19-20 May 2022, Hybrid



Background

The biannual research symposium series on spintronics was initiated by the mutual visits between the *University of York* and *Tohoku University* in Japan in 2007. The symposium series secured funding under the JSPS Research Symposia scheme to support travel budget for the participants from *Tohoku University* in 2011 and 2013. The symposia were then expanded to include *TU Kaiserslautern* in Germany and research collaborations and exchanges among the consortium by the EPSRC-JSPS Core-to-Core programme and a DFG matching funding in 2015. After successfully completing this five-year programme, an EPSRC International Network programme was awarded to continue the symposia and exchanges together with the above two institutions and the *Universities of Manchester and Leeds* as well as *Spintec* in France. This meeting was held as the second meeting of this network programme officially started on 1 April 2021, dedicating for early career researchers.



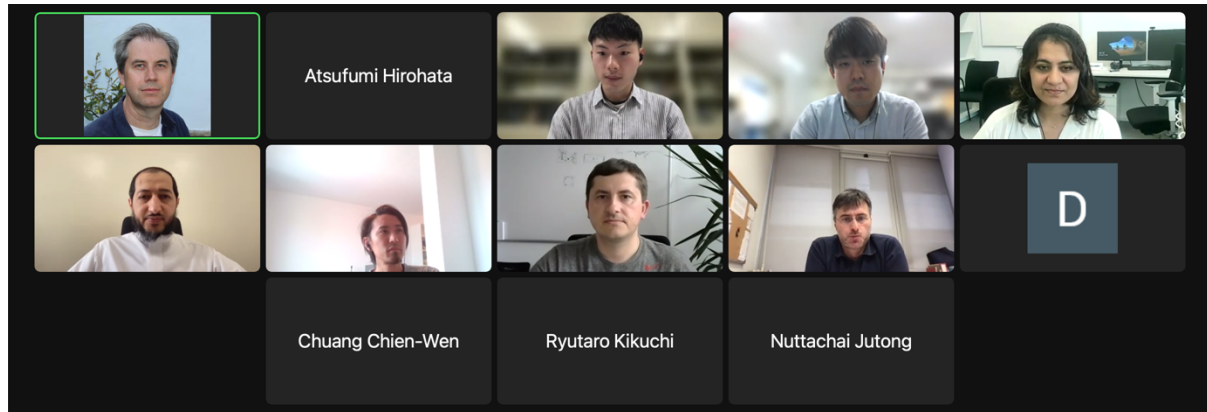
The meeting

The meeting was held locally in Leeds, UK and online using Zoom due to the international travel difficulties currently. Thanks to the local organiser, Prof. Chris Marrows, the UK groups managed to have their local meeting in the Kathleen Lonsdale lecture theatre in the Sir William Henry Bragg Building at the University of Leeds. 42 academics and early career researchers joined this local meeting, which followed by lunch discussion, the steering committee meeting and laboratory tour. We also had informal dinner in the evening of the first day. Including online participants, we successfully attracted over 125 participants from 14 countries and encouraged exciting discussion.

The meeting opened with a welcome address from Atsufumi Hirohata and Chris Marrows, followed by the first session focused on magnonics and magneto-optical effects. Eight talks were given by early career researchers in the network. The session had fruitful discussion on experimental works and modelling. After 10 minute break, the second session was started by an

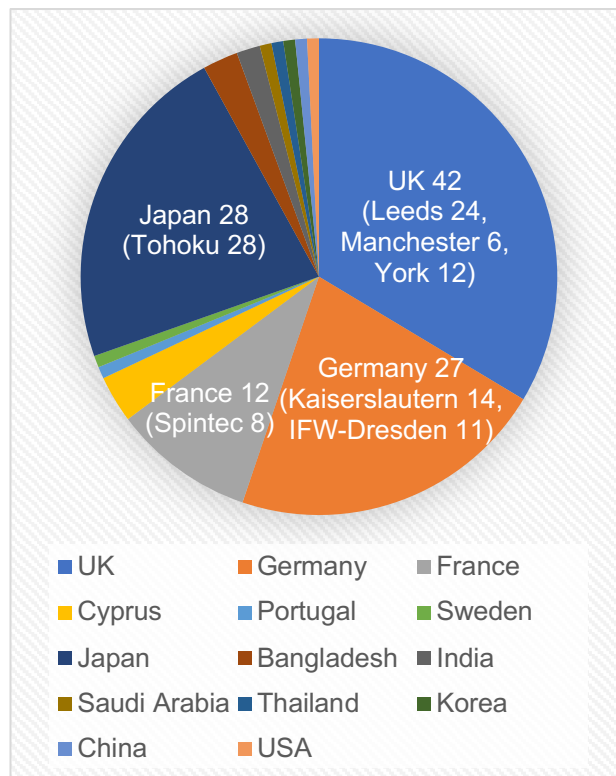
invited talk given by Tom Thomson, overviewing antiferromagnetic spintronics and interfaces. Eight talks were then by the researchers in the network and beyond.

The second day consisted of another two sessions on two- and three-dimensional spintronics and magnetic skyrmions. In the first session, eight talks were given by the researchers in the network. The second session was started by another invited talk by Olivier Fruchart, opening lively discussion on magnetic skyrmions and memory applications, followed by six talks. The meeting was concluded by remarks by Chris Marrows.



Symposium statistics

The symposium consisted of 32 oral presentations in two days, covering major topics in spintronics from theoretical to experimental studies and commercial applications. Almost all the presentations were specifically allocated to early career researchers to offer an ideal opportunity for them to discuss their results with world-leading researchers. They discussed their current research activities to encourage planning exchanges/collaborations in this project. These sessions were attended by around 50 participants constantly.



The symposium attracted 125 registrants (including 7 post-deadline registrations) from 14 countries as listed below, some of which cannot be reached in the conventional face-to-face format,

such as India and Bangladesh. Over 12% of the registrants were from outside the consortium, which maintains the outreach of this network programme and the impact on the field of spintronics. The broad participation also satisfied the scope of the programme. This leads to the geographical distribution to be 69% in Europe, 30% in Asia and 1% in Americas.

Overall, the registrants have well-balanced distributions in terms of the other factors. Regarding gender distributions, 31% and 21% of speakers and participants are female, respectively. These participants are in different career stages as distributed as 52% as PhD students, 37% as early career researchers and 11% as established researchers including professors. 88% of them are in academia, 10% in research institutions and 2% in industries.

Participants' feedback

The feedback from the participants regarding the symposium was very positive. We had some difficulties to liaise the questions asked in Leeds to the online participants on the first day, which was solved by using microphones.

Future meetings

The next symposium will be held at *Tohoku University* next year, followed by one at *TU Kaiserslautern* in May/June 2024. We intend to organise these symposia in a face-to-face format with opening to the wider community as our standard practice.

Last but not least, we are very happy to acknowledge the generous support provided by *EPSRC-UKRI* and trust that future events of this scale and success will be arranged in the coming years



Atsufumi Hirohata
Tom Thomson
Kevin O'Grady

Chris Marrows
Keith McKenna
Mathias Weiler

Burkard Hillebrands
Bernard Diény
Vincent Baltz

Hideo Ohno
Masafumi Shirai
Shigemi Mizukami