

Materials & Devices

Volume 2 Issue 1
10th January 2023

Hello everyone and a happy new year! Welcome to the newest issue of Materials and Devices theme newsletter!

As we begin a new year there are plenty of events that have occurred in the final months of 2022.

Suggestions and ideas are always welcome. If you have any ideas for the next newsletter please send them in.

Please email items for the next newsletter to [Ellie White](mailto:eleanor.white@bristol.ac.uk) (eleanor.white@bristol.ac.uk)

New M&D Doctorates

Congratulations are in order for the following:

[Dr. Amal Altowerqi](#) (Surf Phys) passed her viva on 18th Nov 2022.

[Dr. Gareth Griffiths](#) (IAC) passed his viva.

New M&D Students

A warm welcome to new PhD student [Catherine Monk](#) (Prof Fox). Catherine is part funded by UKAEA and will be working on diamond based tritium detectors.

Farewells

A fond farewell to [Dr. Siqi He](#) (EMAM) who will be leaving us at the end of November to start a new job at Atkins.

Recent Publications

[Dr. Dong Liu](#), [Eric Jiang](#) and [Dr. Paul Fornakreutzer](#) (EMAM) published a paper titled “Exceptional Fracture Toughness of CrCoNi-based Medium- and High-entropy Alloys at 20 Kelvin” to Science, link [here](#).

[Dr Alicja Szczepanska](#) and [Dr. Natasa Vasiljevic](#) (Surf Phys) published a paper to the Journal of the Electrochemical Society titled ‘Surface Alloying During Pb Underpotential Deposition on Au (111), link [here](#).

[Becky Nicolls](#), [Dr. Chris Bell](#), [Dr. Ross Springell](#) and [Prof. Gerard H. Lander](#) (IAC) published a paper titled “Structure and Phase Transitions of Metastable Hexagonal Uranium Thin Films” to Physical Review Materials, link [here](#).

[Dr. Johnny Teague](#), [Dr. David Megson-Smith](#), [Dr. John Day](#) and [Prof. Tom Scott](#) (IAC) published a paper to Oceans titled “Using Colour as a Marker for Coral ‘Health’: A Study on Hyperspectral Reflectance and Fluorescence Imaging of Thermally Induced Coral Bleaching”, link [here](#).

[Prof. Martin Kuball](#), [Alexander Petkov](#), [Prof David Cherns](#) (CDTR) and [Dr. Lilly Liu](#) (EMAM) published a paper to Applied Physics Letters titled “Structural stability of b-Ga₂O₃ under ion irradiation”, link [here](#).

Recognition Award — Awards Ceremony

Thank you to everyone who submitted nominations, and congratulations to the winners of the first Materials & Devices Recognition Award: [Jarrod Lewis](#) (IAC) and [Alexander Petkov](#) (CDTR) (both pictured bottom left).

Some members of the Materials & Devices Visibility Committee met to award Jarrod and Alexander with their trophy, as well as their personalised mug and £50 voucher (bottom right, from left to right, [Ellie White](#), [Alexander Petkov](#), [Jarrod Lewis](#), [Arthur Ely](#) and [Dr. Lilly Liu](#)).

Nominations for the next round of the award will open in the new year, so have your nominations at the ready! As a reminder any Masters/PhD student and post doc can be nominated, nominations must include a short explanation on why this person deserves recognition.



Conferences

[Yuke Cao](#), [Dr. James Pomeroy](#) and [Dr. Indraneel Sanyal](#) (CDTR) attended the International Workshop on Nitride Semiconductors (IWN) held in Berlin, Germany on 9th—14th October. Yuke (below left) presented his work on 'Carrier Scattering Mechanisms in Low density AlGaIn HEMTs', James (below middle) gave an invited talk on 'Heat transport in power and RF devices, and GaN on Diamond' and Indraneel (below right) presented his work on 'Design, growth and characterisation of GaN diodes with tunable turn-on voltage and lateral polar junctions for future superjunction devices'.



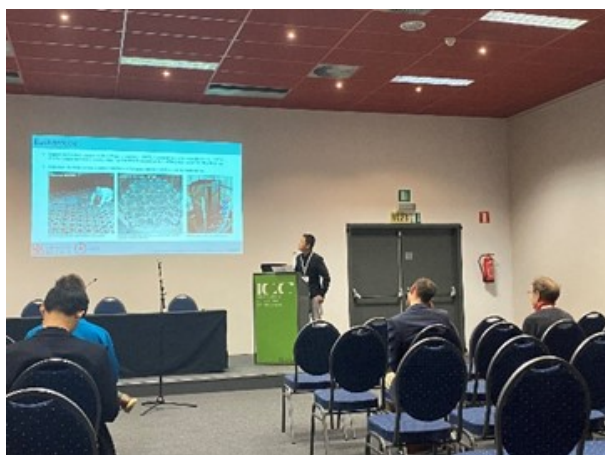
Conferences Cont.

Dr Natasa Vasiljevic (Surf Phys, left) presented her group's work at the 242nd ECS Meeting in Atlanta, GA, US, in October 2022. As the current Chair of the Electrodeposition Division of the Electrochemical Society, she led an organisation of the invited symposium, '100 years of the ELDP Division', that honoured the most significant historical contributions and highlighted the recent achievements, including the outstanding early-career researchers involved in cutting-edge research across a broad range of areas of active electrodeposition research.



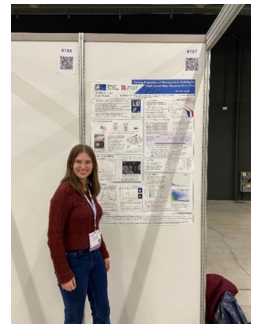
Ellie White (EMAM, right) attended the 6th TRISO Workshop in Aix-en-Provence, France on 19th-21st October. Ellie presented her work on the thermal characterisation of TRISO fuel particle coatings. The conference included a trip to the ITER site and the CEA Caderache site.

Eric Jiang and **Gunajie Yuan** (EMAM) attended the Nuclear Materials Conference (NuMat) which was held in Ghent, Belgium on the 24th—28th October. Eric (bottom left) gave a talk on "In situ high temperature mechanical loading of irradiated PGA graphite studied by digital image correlation and neutron diffraction", and Guanjie (bottom right) gave a talk on "In situ high-temperature X-ray micro-tomography imaging of damage evolution in Cr-coated Zircaloy nuclear-fuel cladding materials".



Conferences cont.

[Sarah Mann](#) (EMAM) attended an ISIS Student Meeting on the 27th—28th Nov where she gave a talk (bottom left) on “Scintillation Decay Kinetics in Nanoparticle ZnS:Ag for Neutron Detection”. Sarah won the prize for Best Talk (bottom middle). Sarah also presented a poster (bottom right) on “Timing Properties of Nanoparticle ZnS:Ag for High Count Rate Neutron Detection” at the IEEE Nuclear Science Symposium on 7th—12th November in Milan.



Events, Outreach & Public Engagement



The Hot Robotics group (IAC) was recently involved in a Nuclear Threat Reduction training exercise, a video of the exercise can be found [here](#). Top left is a still from the video including PhD student [Erin Holland](#) and [Prof. Tom Scott](#). IAC alumni [Dr. Dean Connor](#) was also present at the training exercise, pictured top right.

Events, Outreach & Public Engagement Cont.

[Prof Tom Scott](#) and other members of the Hot Robotics group and IAC visited the Royal Society of Engineering in November, pictured right.



[Daniel Cogbill](#), [Ellie White](#), [Haiqi Huang](#), [Eric Jiang](#), [Dr. Paul Fornakreutzer](#), [Dr. Siqi He](#) and [Dr. Lilly Liu](#) (EMAM) went to Springfield's (NNL), Preston on 25th November to kick off the next phase of the AFCP which Bristol is part of. Pictured left, from left to right, Ellie, Daniel, Eric, Haiqi, Paul and Siqi.

Pets of M&D!

In this issue we are introducing a pet from CDTR, [Laura Jefferies](#) guinea pig [Smudge](#).

Smudge is 3 years old (middle aged in guinea pig years) and lives the life of Riley at the Jefferies house. She tolerates the Jefferies because they feed her, and her hobbies include sleeping, eating and burrowing in hay.

If you would like any of your furry friends to be featured in future issues, please don't hesitate to send your pictures into [Ellie](#).

