

# Materials & Devices

Volume 1 Issue 4  
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Hello everyone and welcome to the 4th issue of Materials and Devices newsletter!

The new academic year has begun and campus now is bustling with students again. I hope everyone had a lovely summer and is now refreshed for the new year to begin.

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:Ellie.White@bristol.ac.uk) (z121970@bristol.ac.uk)

## New M&D Doctorates

Congratulations are in order for the following:

[Dr. Robbie McKenzie](#) (IAC) passed his viva with minor corrections and will be continuing his work in the IAC, collaborating with [Prof. Tom Scott](#) on novel gamma voltaics.

[Dr. David Kumar](#) (IAC) passed his viva with minor corrections.

[Dr. Sam White](#) (IAC) passed his viva with minor corrections and is off to work at Jacob's.

[Dr. Ian Ang](#) (IAC) passed his viva with minor corrections.

## Welcoming New Students to Theme

The beginning of the new academic year brings waves of new students starting a new chapter in their lives. A warm welcome are in order for the following students joining the theme this academic year:

[Rae Darcia-Holmes](#) is a Masters by Research student joining Prof Fox's group. Rae's work is on the fabrication and evaluation of n-type diamond electrodes for Thermionic Energy Converter applications

[Ethan McHugo](#) is a Masters by Research student joining Drs. Antognozzi and Gersen's group.

[Leo Norman](#) is a PhD student joining the CDTR looking into thermal Reliability of Power electronic devices using wide bandgap materials, such as GaN and Ga<sub>2</sub>O<sub>3</sub>, under the supervision of [Prof Martin Kuball](#).

[Chengzhi Zhang](#) is also a PhD student joining the CDTR and researching power electronic devices using wide bandgap materials, such as GaN and Ga<sub>2</sub>O<sub>3</sub>, for next-generation applications including EVs, renewable energy, and smart power grids, under the supervision of [Dr. Matthew Smith](#).

[Daniel Cogbill](#) is a PhD student joining the EMAM group, co-sponsored by UKAEA. Daniel's work will be on nuclear fusion ceramic matrix composites under the supervision of [Dr. Lilly Liu](#), [Dr. James Wade-Zhu](#) and [Dr. Slava Kuksenko](#) (both UKAEA).

Students joining the IAC this year are:

[Billy Joe Murphy](#) who is researching wall-crawling nuclear robot for remote inspection, swabbing and sampling of legacy boilers and reactor building hangers under the supervision of [Dr. Chris Hudson](#) and [Prof. Tom Scott](#).

[Ewan Woodridge](#) who is researching advanced methodologies for airborne radiometric surveying of nuclear sites under the supervision of [Prof. Tom Scott](#) and [Prof. Peter Flewitt](#).

[Hannah Tipping](#) who is researching thermal transient effects in fusion front wall/breeder blanket components under the supervision of [Dr. Tomas Martin](#) and [Prof. Peter Flewitt](#).

[Ava Grossman](#) under the supervision of [Dr. Tomas Martin](#) and [Prof. Peter Flewitt](#).

[Alex Little](#) who is researching into the extraction of hydrogen isotopes from molten lithium under the supervision of [Dr. Tomas Martin](#) and [Prof. Tom Scott](#).

[Norbert Wegrzynowski](#) under the supervision of [Prof. Tom Scott](#) and [Dr. Peter Martin](#).

[Will Thomas](#) who is researching into understanding the fundamentals of uranium hydride formation under the supervision of [Dr. Ross Springell](#) and [Dr. Sven Freidemann](#) (Hard Condensed Matter Group).

## Recognition Award –Winner’s Announcement

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).

[Jarrod Lewis’s](#) (below left) hard work in organising the Seminar Series throughout the ongoing pandemic not only gave him a welcome distraction from the News, but also got him nominations for the Recognition Award.

Jarrod’s role mainly involved contacting academics via email both from within the university and beyond, and trying to subtly invite as many speakers whose work he found interesting whilst still fitting the broader remit of “Materials & Devices”.

During his time in charge of the series, Jarrod was able to organize a good run of female academics to present seminars the theme.

[Alexander Petkov](#) (below right) role as a PGR representative on the Equity, Diversity and Inclusion (EDI) Committee in Physics for 2020/21 and 2021/2022 academic years.

During his time as an EDI representative, Alex took on a number of roles, liaising between PGR student body and staff on EDI-related issues, including:

- Advising on the organisation of training and social events throughout the academic year, including school-wide competitions for increasing LGBTQIA+ visibility in Physics.
- Becoming involved in the campaign for promoting the 2021 Postgraduate Research Experience Survey (PRES), which ended up answered by 51% of PGRs in the School of Physics - the largest percentage for a large School within the University.
- Analysing and reporting the results from the 2019 and 2021 PRES to the Graduate School and working closely with its director on addressing some of the EDI-related issues highlighted from PRES (including increasing disability support for PGRs) within the new Education Action Plan for Physics.

Nominations for the next round of the award will be opening soon, so please get ready to send in your nominations again. 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

[Dr Stacy Moore](#) (below far left), [David Kumar](#) (below near left) , [James Hargreaves](#) (below near right) and [Dr Tomas Martin](#) (presenting [Dr Siqi He's](#) PhD work, below far right) (IAC) the Microscopy and Microanalysis 2022 conference in Portland, Oregon this August, presenting the latest work from the group on corrosion, creep cavitation and thermal excursions in metal alloys for nuclear power. The conference had some great talks on the latest microscopy and an excellent exhibit from microscope manufacturers with their latest technology, giving the team inspiration for future upgrades to the facility!



[Matthew Ryan Tucker](#) and [Dr Yannick Verbelen](#) (IAC) attended NENE2022 (31<sup>st</sup> International Conference for Nuclear Energy for New Europe) in Portoroz Slovenia.

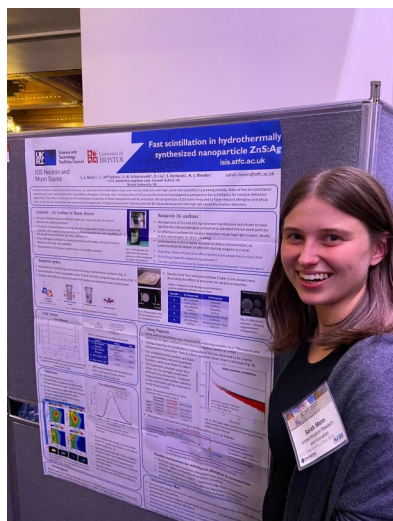
[Erin Holland](#) (IAC) attended the 14<sup>th</sup> International Symposium on Nuclear and Environmental Radiochemical Analysis.

[Eric Jiang](#) and [Dr. Lilly Liu](#) (EMAM) attended a RaDIATE (Radiation Damage In Accelerator Target Environments) workshop, Rutherford Appleton Laboratory, UK.

[Liam Cullingford](#) and [Liia Buhhanevits](#) (Prof Fox) presented their research at the BCFN annual conference.

[Nam Phonrat](#) and [Georgina Plant](#) (Drs. Antognozzi and Gersen) attended biophysical conference in Stockholm, Sweden.

[Liam Cullingford](#) (Prof Fox) presented at the student conference. His research focuses on multilayer scintillators for enhanced neutron imaging and radiation detection.

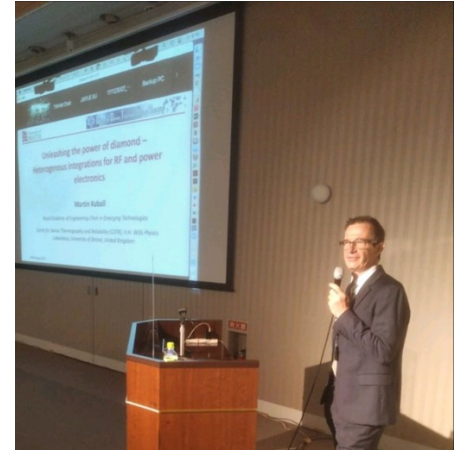


[Sarah Mann](#) (EMAM, pictured left) presented her work on the effect of different starting reagents on the scintillation properties of ZnS nanoparticles. The conference was SCINT 2022, Santa Fe, USA from 19-24 Sep.



## Conferences continued

**Prof. Martin Kuball** (CDTR, pictured right) gave the opening plenary talk on “Unleashing the power of diamond—Heterogeneous integration for RF and power electronics” at the 14th Topical Workshop on Heterostructure Microelectronics, Hiroshima, Japan.



**Dr. Lilly Liu** (EMAM) has presented three invited talks at RaDiate Workshop, INGSIM (22nd International Nuclear Graphite Specialists Meeting, Shanghai, China) and MSMF (10th International Conference on Materials Structure & Micromechanics of Fracture, Brno, Czech Republic).

**James Pittard** (Prof Fox) attended his first conference - the 32<sup>nd</sup> Symposium on Fusion Technology (SOFT) in Dubrovnik. He presented a poster on deuterium retention of polycrystalline diamond.

## Funding Success

The CDTR have been awarded a [New Horizon Project](#) on Gallium Oxide MOCVD growth and power devices. The investment builds on the more than 100 transformative New Horizons projects funded by EPSRC in 2020.

The project will focus on targeting high voltage power devices using van der Waals epitaxy of Gallium Oxide, opening the doors to research into low cost high voltage power devices with the aim to enable a zero carbon missions society and a reduction in our energy waste. More information on the project can be found [here](#).

## Pets of M&D!

In this issue we are introducing another one of the cats from the IAC, [Willow](#).

She's beautiful but deadly and recognised by many of the IAC as being very friendly in order to get you in close and then she strikes with razor sharp claws. Willow is to be treated a bit like a sealed radiation source - keep a respectful distance most all the time and handle only when necessary using great care!

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](#).

