

# Materials & Devices

Volume 2 Issue 2  
28th February 2023

Hello everyone and welcome to the most recent issue of Materials and Devices theme newsletter!

Winter is finally coming to an end and there has been a lot going on within the theme at the beginning of this year!

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 for [Jarrod Lewis](#) (IAC) who has now submitted his thesis. Jarrod has now started his new job as a PDRA at Oxford Materials.

## New M&D Members

A warm welcome to the following new members of the theme:

[Anjali Anjali](#) is a PhD student joining the CDTR, looking into RF switching and hot electron related degradation using Electroluminescence.

[Dr. Qiance Zhang](#) has joined the EMAM group as a PDRA.

[Dr. Sai Charan Vanjari](#) has joined the CDTR as a PDRA, researching Gallium Oxide Power devices.

## Recent Publications

[Sarah Mann](#) (EMAM) published her first paper, along with [Dr. Lilly Liu](#) (EMAM), titled 'Timing properties of radioluminescence in nanoparticle ZnS:Ag scintillators' to Optical Materials: X, link [here](#).

[Dr. Alexander Petkov](#), [Dr. Abhishek Mishra](#), [Dr. James Pomeroy](#) and [Prof. Martin Kuball](#) (all CDTR) published a paper titled 'Molecular dynamics study of thermal transport across Ga<sub>2</sub>O<sub>3</sub>-diamond interfaces' to Applied Physics Letter, link [here](#).

[Dr. Alisha Cramer](#), [Dr. Antonios Banos](#) and [Prof. Tom Scott](#) (IAC) published a paper titled 'An investigation of the reaction of uranium with nitrogen—A thermogravimetric analysis study' to the Journal of Nuclear Materials, link [here](#).

[Guanjie Yuan](#) (EMAM) also published his first paper alongside [Dr. Paul Forna-Kreutzer](#) and [Dr. Lilly Liu](#) (both EMAM), titled 'In situ high-temperature 3D imaging of damage evolution in a SiC nuclear fuel cladding material' in Materials & Design, link [here](#).

CDTR alumnus [Dr. Daniel Field](#) collaborated with [Dr. James Pomeroy](#), [Prof. Martin Kuball](#) (CDTR) and [Dr. Lilly Liu](#) (EMAM), as well as EMAM alumnus [Dr. Alexander Leide](#). Their publication 'Evaluating the interfacial toughness of GaN-on-diamond with an improved analysis using nanoindentation' was submitted to Scripta Materialia, link [here](#).

[Dr. Stacy Moore](#) and [Dr. Tomas Martin](#) (IAC) published an article titled 'Uncovering the tiny defects that make materials fail' to Physics World, link [here](#).

[Eric Jiang](#) and [Dr. Lilly Liu](#) (EMAM) published a symposium paper titled 'A Review of High-Temperature Characterisation of Nuclear Graphites' to ASTM, link [here](#).

## Recognition Award — Nominations are Open!

Nominations for the next round of the award are now open!

As a reminder any Masters/PhD students and PDRAs can be nominated, nominations must include a short explanation on why this person deserves recognition. Nominations can include, but aren't limited to, extra-curricular work that somebody carries out alongside their PhD, group role models, or someone who goes above and beyond with contributions to a group, the theme or the School of Physics.

The aim of this award is to celebrate and promote individuals that contribute positively to the theme, and go above and beyond their research.

Please send in your nominations and any questions you have about the award to [Ellie White](#).

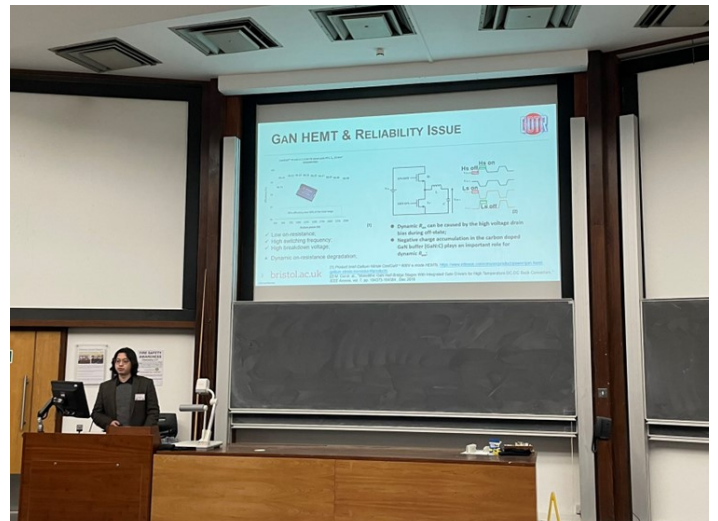
## Conferences

The CDTR group hosted this years UK Nitride Consortium (UKNC) at the University of Bristol on the 5th and 6th January 2023. The UKNC brought together members of the Nitride international community to share their thoughts and valuable works, including oral presentations from CDTR members.

[Dr. Indraneel Sanyal](#) presented a talk on 'Metalorganic Chemical Vapour deposition of beta-Ga<sub>2</sub>O<sub>3</sub> on Diamond (100) substrates'.

[Dr. Xiang Zheng](#) (below left) presented a talk on 'Characterisation of Low Temperature Grown Diamond for Integration with GaN HEMTs'.

And last but not least, [Henry Huang](#) (below right) gave a talk on 'Suppression of Negative Buffer Charging in GaN HEMT under High Positive Substrate Bias'.





## Conferences Cont.

[Dr. Paul Forna-Kreutzer](#) (pictured far right) and [Dr. Lilly Liu](#) (pictured near right, both EMAM) attended the 47th International Conference and Expo on Advanced Ceramics and Composites (ICACC2023) 22nd-27th January in Daytona Beach Florida. Between the two of them, they gave three talks:

[Dr. Forna-Kreutzer](#) gave an **invited talk** on 'Investigation of the high-temperature behaviour of oxide-oxide ceramic matrix composites using in situ X-ray tomography and digital volume correlation.'

[Dr. Liu](#) gave two talks, an **invited talk** on 'Understanding Failure Mechanisms in Advanced Ceramic Materials at Elevated Temperatures: From Nuclear Graphite, TRISO to Ceramic-Matrix Composites' and a talk on '3D tomography image-based study of PYCASSO TRISO fuel particles.'

Also congratulations to [Dr. Liu](#) was also awarded the Engineering Ceramics Division (ECD) Jubilee Global Diversity Award. This award is intended to recognise early to mid-career professionals who are women and/or underrepresented minorities (based on race, ethnicity, nationality and/or geographic location) in the area of ceramic science and engineering.



## Pets of M&D!

In this issue we are introducing [Dr. Neil Fox's](#) bundle of trouble [Minette](#).

[Minette](#) is 18 months old but always up to no good. Bothering magpies at the top of trees by stamping her paws on the branches where they are perched, is one of her specialties. Her favourite calendar event is triple nothing which occurs every day just after mealtimes when she can be found on her bean bag.

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](#).

