

Materials & Devices

Volume 2, Issue 3

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

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) (eleanor.white@bristol.ac.uk) or [Arthur Eley](mailto:Arthur.Eley@bristol.ac.uk) (arthur.eley@bristol.ac.uk).

PhD Vivas

[Sami Ullah](#) (Dr. Fox's group) passed his viva on looking into methods to produce scalable temperature-stable emitters for thermionic and betavoltaic applications.

New Equipment

The IAC has been updating its current capabilities. Their new ThermoFisher Scio Ga FIB has arrived and is waiting to be commissioned. New EDX and EBSD detectors, from EDAX, are being installed on the FEGSEM and the Plasma FIB arrives in June.

Recent Publications

[Erin Holland](#) (IAC) had her first paper published, E. Holland, Y. Verbelen, D.T. Connor, T. Martin, M. Higginson and T.B. Scott, "An Introduction to Nuclear Archaeology" in Sustainability 15(7) (2023), link [here](#).

[James Hargreaves](#) (IAC) had his first first author publication (and Hannah Tipping's first paper), J. Hargreaves, S. Moore, G. Yuan, D. Liu, H. Tipping, R. Abbott, J. Tufnail, H. Dawson and T.L. Martin, "Microstructural modelling and characterisation of laser-keyhole welded Eurofer 97", Materials & Design 226 (2023), link [here](#).

[Hao Shang](#) (IAC) had a paper published in Materials Science and Engineering: H. Shang, A. Fernandez-Cabellor, E. Elmukashfi, T.L. Martin, K.R. Hallam, A.C.F. Cocks and P.E.J. Flewitt, "Creep cavitation evolution in polycrystalline copper under conditions of stress relaxation", Materials Science and Engineering: A 869 (2023), link [here](#).

[Dr. Lottie Harding](#) (IAC) had a paper published: Harding, L. M., Lawrence Bright, E., Laverock, J., Goddard, D. T., & Springell, R. S. (2023). Epitaxial stabilisation of uranium silicide line compounds. Thin Solid Films, 768, [139690], link [here](#).

IAC alumnus [Eleanor Lawrence Bright](#) had a paper published: Lawrence Bright, E., Xu, L., Harding, L. M., Springell, R. S., Walters, A., Sundermann, M., Garcia-Fernandez, M., Agrestini, S., Caciuffo, R., van der Laan, G., & Lander, G. H. (2023). Resonant inelastic x-ray scattering from U3O8 and UN. Journal of Physics: Condensed Matter, 35(17), [175501], link [here](#).

[Sami Ullah](#) (Dr. Fox's group) had a paper published on 'Oxygen activated CVD growth of large-area multilayer h-BN on polycrystalline copper foils' to the Journal of Crystal Growth, link [here](#).

Recognition Award — Nominations are Open!

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

Any Masters/PhD student or PDRA can be nominated, nominations must include a short explanation on why this person deserves recognition. The recognition award is typically presented for extra-curricular work that contributes positively to our theme, which can be as broad or specific as you like.

The aim is to celebrate and promote individuals that give up their time making the materials and devices group enjoyable for everyone.

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

Conferences

Dr. Dong Liu (EMAM), attended the TMS 2023 Conference where she organised one symposium, won the TMS young leader award and ran an Asian/Pacific Islander workshop. Dong, chair of the Asian/Pacific Islander Working Group at TMS EDI committee, together with her committee members from 9 universities and national laboratories in the US and Canada, have launched the Inaugural Asian/Pacific Islander Workshop in San Diego, USA (21 March 2023). The workshop has four invited speakers. **Amit Misra**, University of Michigan, shared tips and advice on how to build a successful career and navigate the professional world as an API. The other speakers were (pictured, from left to right): **Meimei Li**, Argonne National Laboratory; **Vincent Yuan**, Los Alamos National Laboratory; **Harriet Kung**, U.S. Department of Energy; and Misra. After each of the presenters gave an introductory talk, they engaged in an informal panel discussion with the audience. The scope and mission of the API working group is described in an article (page 30-31) in the Journal of Materials led by Dr. Lilly Liu: https://www.tms.org/portal/downloads/publications/jom/JOMmagazine_2023_01_January_Interactive.pdf



Conferences cont.

The EMAM group hosted the 1DRAC meeting and the **European Ceramic Society (ECers) UK Student Speech Contest**, 6 April 2023. The 1 Day Research meeting on Advanced Ceramics (1DRAC) was curated by the IOM3 Ceramic Science Committee to provide PhD students and Post-Docs with an opportunity to present their work to industry experts and build up their network with other early career researchers.

Eleanor White (EMAM) **won the Speech contest** and will represent the UK to enter the international competition in Lyon, France this summer.



Experiments

Florence Legg, **Dr. Lottie Harding** (IAC) and IAC alumnus **Eleanor Lawrence Bright** (pictured below) spent time at the ID11 beamline at ESRF, Grenoble, conducting some high temperature oxidation studies on Florence's mixed-actinide oxide epitaxial thin films.



Dr. Antognozzi's group visited FluoretiQ, performing a successful demonstration of their technique "Sub Cellular Fluctuation Imaging" as a tool to measure the bacterial response to antibiotic treatments in real time.