



This is a repository copy of *Preface to the special issue on microscopy of semiconducting materials 2023*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/215069/>

Version: Accepted Version

---

**Article:**

Walther, T. [orcid.org/0000-0003-3571-6263](https://orcid.org/0000-0003-3571-6263) and Oliver, R.A. (2024) Preface to the special issue on microscopy of semiconducting materials 2023. *Journal of Microscopy*, 293 (3). pp. 135-137. ISSN 0022-2720

<https://doi.org/10.1111/jmi.13265>

---

© 2024 The Authors. Except as otherwise noted, this author-accepted version of a journal article published in *Microscopy of Semiconducting Materials* is made available via the University of Sheffield Research Publications and Copyright Policy under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>

**Reuse**

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.

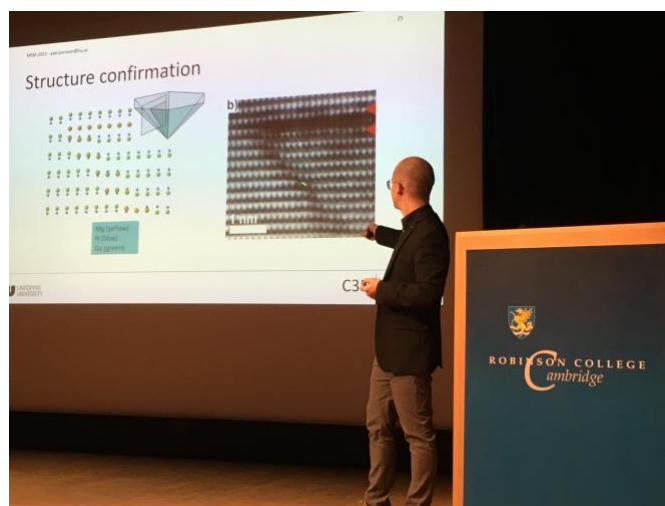


[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>

## Preface to the special issue on Microscopy of Semiconducting Materials 2023

This issue contains selected invited and contributed presentations from the 22<sup>nd</sup> international conference on *'Microscopy of Semiconducting Materials'* held at Robinson College, University of Cambridge, on 3-6 April 2023. The meeting was organised by the Royal Microscopical Society and financially supported by the following commercial exhibitors whom we would like to thank very much for their invaluable sponsorship: Bruker, Evident / Olympus, Gatan / EDAX, JEOL, MDPI and Oxford Instruments.

The conference series has been running biennially since 1979 and was only interrupted by the COVID pandemic which prevented the meeting from going ahead in 2021. This meant that we had to re-start the series after a long break, not knowing what travel would actually be possible. We are therefore happy that this meeting was finally attended by 53 delegates from 10 countries, including two each from China and from the USA, and hope for a larger audience next time. We had 52 scientific contributions in total: 10 invited talks (1 online and 4 by female scientists), 22 contributed talks, 4 'techno-bite' company presentations and 16 poster presentations. We hope that we can return in the next meeting to pre-pandemic audience sizes [1].



**Figure 1.** Invited speaker Axel Persson next to the lectern with the college crest



**Figure 2.** The happy poster prize winners

PhD students Samba Ndiaye (Université de Rouen Normandie, France) and Ruben Bueno Villoro (Max-Planck Institut für Eisenforschung, Düsseldorf, Germany) were awarded prizes for the high quality of their posters, which studied Ge-based elemental and NbFeSb-based half-Heusler semiconductors, respectively, by atomic probe tomography and electron microscopy.

Robinson College is thanked for providing accommodation, lecture facilities including technical support, and for the friendliness of the catering staff.

We would like to also thank the staff of the RMS for their expert assistance in planning and running this meeting - in particular Victoria ('Tor') Masters and Alessandra Reni for their efficient and professional support.



**Figure 3.** Punt tour on the river Cam on an overcast afternoon

Finally, we are grateful to Jill Hobbs from the *Journal of Microscopy*, as well as to all contributors and reviewers, for helping us to put together this special issue. All submissions have undergone a full peer review process by two or three independent reviewers, and the following six manuscripts [2-7] have been accepted:

- [1] T Walther, Y Calahorra, F Massabeau: Preface to the special issue on Microscopy of Semiconducting Materials 2019. *Semicond. Sci. Technol.* **35** (2020) 120201.
- [2] M Stöger-Pollach, K Bukvisova, K Zenz, L Stöger, Z. Scales: Important aspects of investigating optical excitations in semiconductors using a scanning transmission electron microscope. <https://doi.org/10.1111/jmi.13242>
- [3] J Smalc-Koziorowska, J Moneta, G Muziol, W Chrominski, R Kernke, M Albrecht, T Schulz, I Belabbas: The dissociation of (*a+c*) misfit dislocations at the InGaN/GaN interface. <https://doi.org/10.1111/jmi.13234>
- [4] A Diagne, L Gonzalez Garcia, S Ndiaye, N Gogneau, M Vrellou, J Houard, L Rigutti: Field-dependent abundances of hydride molecular ions in atom probe tomography of III-N semiconductors. <https://doi.org/10.1111/jmi.13233>
- [5] T Guo, T Walther: Towards quantification of doping in gallium arsenide nanostructures by low-energy scanning electron microscopy and conductive atomic force microscopy.
- [6] S Liu, J Dong, Z Ma, W Hu, Y Deng, Y Shi, X Wang, Y Qiu, T Walther: The evolution of indium precipitation in gallium focused ion beam prepared samples of

InGaAs/InAlAs quantum wells under electron beam irradiation.  
<https://doi.org/10.1111/jmi.13251>

- [7] C Li, X Mu, M Korytov, EGT Bosch, I Alexandrou: Differential Phase Contrast (DPC) mapping electric field: optimizing experimental conditions.

December 2023

Thomas Walther, University of Sheffield  
Rachel A Oliver, University of Cambridge