



AFM & Scanning Probe Microscopies Section AGM Annual Update 2021

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It is my great pleasure to write this yearly report, as the new Chair of the AFM & SPM section. I would like to extend my heartfelt thanks to the outgoing Chair, Sonia Contera, who superbly guided the section over several years, and to Jamie Hobbs, our Deputy Chair. The immense experience and enthusiasm of both Sonia and Jamie have helped to shape new and exciting directions for our section.

It was undoubtedly a very challenging and out of the ordinary year for the RMS and our section, not to mention the overwhelming global impact of the pandemic. Nevertheless, the RMS, the AFM & SPM section and our symposia chairs superbly raised to the challenge, which resulted in a successful virtual mmc2021 meeting, as well as other virtual events.

The AFM and SPM Symposia, as part of the virtual mmc2021 meeting, were well attended with speakers and invited speakers from the UK, France, Germany, Spain, Belgium and the Netherlands. Following the trend of previous mmc series SPM meetings, during the selection of Symposia topics we tried to highlight the scientific targets, pairing them with the microscopy methodology and techniques. The sections were:

- **Quantitative SPM for Biology, Biomedicine, and Bioinspired Technologies**, Session Chair: Professor Brian Rodriguez (University College Dublin, Ireland), Invited speakers - Dr Laia Pasquina-Lemonche, Dr Pedro J de Pablo.
- **SPM Techniques on Energy Materials and Processes**, Session Chair: Professor Ulrich Stimming (Newcastle University, UK), Invited speakers - Dr Wing Chung Tsoi, Professor Dr Andreas Bund.
- **Functional Scanning Probe Microscopy for Advanced Material Science**, Session Chair: Dr Olga Kazakova (National Physical Laboratory, UK), Invited speakers - Dr Laura Fumagalli (SPM medal), Professor Frank Koppens.
- **New Frontiers in Quantum Matter Visualization**, Session Chair: Professor Séamus Davis (University of Oxford, UK), Invited speakers - Dr Freek Masee, Dr Hermann Suderow.

Our section feel that focusing the mmc AFM & SPM Symposia on scientific targets will promote a closer collaboration with other science sections of the RMS, addressing the same questions by the complementary microscopy methodologies. A major overlap already exists with Data Analysis, Engineering and Physical Sciences, and Electron Microscopy, and such an overlap was highlighted by a plenary talk by Dr Olga Ovchinnikova (Oak Ridge National Laboratory, USA), which I had a pleasure to chair. Dr Ovchinnikova used a synergetic combination of AFM, EM and ion probe microscopies to study nanoscale materials.

At mmc2021 we were delighted to virtually present the Medal for Atomic Force and Scanning Probe Microscopy to Dr Laura Fumagalli, a Reader at the University of Manchester, for the outstanding work which exemplifies the power of AFM for understanding complex physical phenomena at the nanoscale.

We also congratulated winners of the scientific AFM & SPM imaging contest - Dr. George Devitt (Southampton) and Dr Agata Szuba (Leeds) for their inspiring images of the nanoworld.

During the last AGM meeting in 2020, we extended our congratulations to Professor Neil Wilson on receiving the RMS Scientific Achievement Award for his activity in the area combining scanning probe and electron microscopy. Neil was one of the founders of the RMS scanning probe microscopy section (the name of the AFM & SPM section at the time) promoting this field in the UK.

We had hoped to present Professor Mervin Miles with an RMS Honorary Fellowship for the outstanding contributions to scanning probe microscopy at either mmc2021 or at the main RMS AGM being held today, but as both meetings are virtual, we hope that Professor Miles will be able to provide a talk and receive his presentation at the 2022 AFM & SPM meeting next summer.

We held a well-received one-day Virtual Data Analysis in Atomic Force Microscopy Meeting in December 2020, which was organised by Dr Alice Pyne, Professor Jamie Hobbs, Dr Ioanna Mela and Dr Laia Pasquina Lemonche. The meeting featured presentations on image and scanning probe data processing as well as an open discussion addressing the challenges in AFM and SPM imaging.

Forthcoming events in 2021 are as follows:

- This AGM today.
- An AFM & SPM Image Analysis Coffee Morning which will be held in December 2021.
- The AFM & SPM Meeting is planned for July 2022, further details will be available in the near future.
- Planning is underway for mmc2023 incorporating EMAG, and will be held 4 – 6 July 2023, hopefully in Manchester. We are hoping to hold an in-person congress, and that joint sessions with other Symposia can be organised.
- Finally, we are exploring a possibility for RMS twitter conference looking at the success of the RCS Twitter conference <https://www.rsc.org/events/detail/45792/2021-rscposter-twitter-conference>, in the format complementary to the traditional mmc series meeting or the AFM & SPM meeting.

All AFM & SPM section committee meetings were held virtually this year, and even though the meetings were not in person, they were still very efficient. The virtual format of the meetings allowed us a broad international reach, with the presence at the meetings of international members Dr Brian Rodriguez (a Chair of Biomedicine Symposium at mmc2021) based in Ireland (UCD), and our Early Career Representative Dr Minkyung Kang who is based at Deakin University, Australia. The committee membership continues to keep a good breadth of academic and industrial members, with the latter including UK based small and medium sized companies as well as large international corporations. In line with other sections, the membership of the committee was extended by a year due to the pandemic, so we are lucky to keep our current members on board.

We are looking to expand the international appeal of our section, with RMS being one of only a few microscopical societies worldwide that has a fully-fledged AFM or SPM section. We are following the initiative of Professor Roland Kröger, Chair of the EPS section, in setting up the international collaboration with other microscopy societies. The section also now has a new approved hashtag **#RMSAFM**, that we plan to use in our activities.

Finally, I would like to extend my warmest thanks to Allison, Amanda and all of the RMS team for the excellent help and guidance for the section activity, mmc organisation and beyond.