

I remember applying to the MSSA conference on the insistence of my supervisor. I was reluctant to attend, since I was only in my honours year and I had never attended a conference before. I presented a poster of my project entitled “Investigating Tau pathology in an *in vitro* model for Alzheimer’s disease”. The conference was enough of an experience to me alone. So I never thought I would walk away with any award, never mind the top prize of “Most Promising Microscopist”.



*Figure 1: Myself, Mr Dave Perret and Prof James-Wesley Smith at the MSSA 2014 Gala dinner*

The evening of the MSSA gala dinner was such a blur. I remember enjoying the company of my fellow classmates, who like me, were also there for the first time. I didn’t even hear my name being called out, all I can remember was being told to go up on stage. In that moment I didn’t realise the enormity of the situation. I went up to collect the award from Mr Dave Perret (ALS) and Prof James-Wesley Smith (MSSA President) who had told me that I would be attending an all-expenses paid trip to the MMC (Microscience Microscopy Conference) 2015 conference in Manchester. My heart almost leapt from my chest. In the following moments, I went back to my table and I had to take a moment to absorb what had just happened. Never in my wildest dreams did I think that it would ever happen to me.

The MMC 2015 conference, which was held at the Manchester Convention Complex, incorporated the EMAG (Electron Microscopy and Analysis Group) exhibition this year. EMAG is one of the largest exhibitions on microscopy in Europe. It showcases the latest vanguard of electron microscopy related technology annually. This year over 1300 delegates, of which only 4 were South African, attended the conference and exhibition. Six different conference sessions were held parallel to each other and over 100 companies exhibited their instruments.



*Figure 2: The exhibition was housed in the main hall of the Manchester Convention Complex (MCC). The MCC used to be the city train station, owing its sheer size.*



*Figure 3: The four South Africans. Prof Andre Botha (UP), Prof Mike Lee (NMMU), Rakesh Patel (ALS) and myself*

Countless informative workshops were held concurrently with the conference. The workshops were held on various topics, ranging from the basics of ImageJ software to troubleshooting fluorescence related problems in Cryo-CLEM. I attended a pre-congress workshop on light-sheet microscopy, which was hosted by Dr Emmanuel Reynaud. It was extremely informative and interesting, as it was an unknown technique to me.



*Figure 4: Dr Reynaud discussing the light-sheet technique*

The Royal Microscopy Society (RMS) had a dedicated learning zone where techniques, like basic confocal microscopy, were being taught. They even had a small exhibit displaying historical microscopy equipment, which was very interesting.



*Figure 5: The RMS learning zone with the various assistants*

The plenary talks were really something to witness. It was amazing to see the ground-breaking work being done in Europe. One of talks that captured me the most, was that of Prof Petra Schwille. Her research revolves around synthetic biology, specifically trying to determine the minimal genes needed for basic life. For her work she was inducted into the RMS as an honorary fellow, along with all the other plenary speakers. I also got to listen to Prof Xiaowei Zhuang who, along with her group, pioneered the super-resolution microscopy technique Stochastic Optical Reconstruction Microscopy (STORM), which breaks the diffraction limit – allowing for better resolution.



*Figure 6: Prof Schwille presenting during her plenary*

The session that I enjoyed the most was the Volume Electron Microscopy in Life Sciences session chaired by Dr Lucy Collinson (Crick Institute) and Prof Christopher Guerin (University of Ghent). Prof Guerin's talk was the best that had seen at the conference. It was about volumetric analysis of 3D reconstructed cells using serial block face SEM (SBSEM) at ultrastructural resolutions. To be honest, it completely blew my mind.



I submitted an abstract to do a poster presentation, but was fortunate enough to do a contributed presentation on my work during the cytoskeleton dynamics session. It was nerve wracking, but I got the opportunity of a lifetime and for that I am grateful.



*Figure 7: My presentation*

The poster sessions were also very informative and were held at the end of every day so that most of the delegates would be able to see them. It allowed a time for proper networking over drinks. I was fortunate enough to speak to people within similar research fields, I even got a couple of business cards. I listened to their research and got advice on specific techniques, which I really appreciated.



*Figure 8: The poster presentation area*

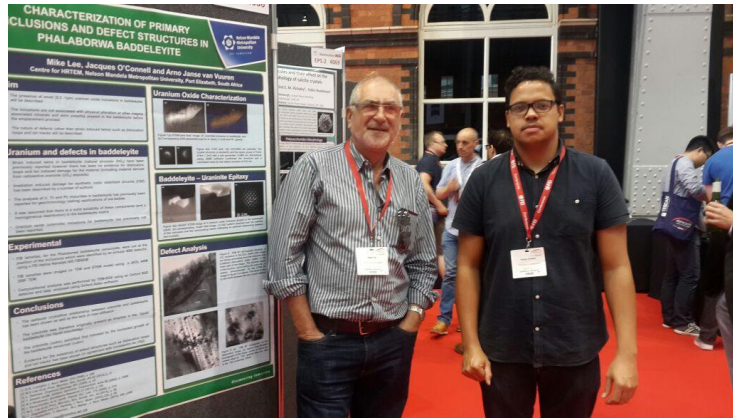


Figure 9: Prof Mike Lee and myself, standing next to the poster that he had presented on novel defect structures in Phalaborwa Baddeleyite.

Even more exciting was the RMS image competition. Some of the images were breath-taking to say the least. Although half the time I had no idea what I was looking at (in terms of material science), one could still appreciate the hard work that was put into producing them.



Figure 10: The winner of the EM Life Science RMS competition. This SEM micrograph was my favourite. It depicts two predatory mites fighting.



Figure 11: Some of the exceptional entries



*Figure 12: Rakesh admiring the images*

The conference banquet dinner was held at the iconic Midlands hotel which is situated across the street from the convention centre. The evening started off with a pre-dinner round of Pimm's, which I was told is a traditional English liqueur – although some don't truly regard it as alcohol. This was followed by an amazing three course meal which was complemented with wine from none other than the Stellenbosch region in South Africa, which seemed rather fitting.



*Figure 13: Pre-banquet drinks at the Midlands hotel*

During my stay I was also fortunate enough to join the managing director of JEOL UK, Mr Yasuo Takemitsu and the other members of the JEOL UK and JEOL Japan team, for dinner. Afterwards they insisted on taking me to an authentic English pub for a real pint of English stout. Listening to them talk about business made me realise the passion that they have for their work. Learning that some of the technicians were trained as biologists surprised me a lot, as it shows how science is moving in an interdisciplinary direction. Of course, the evening did not only revolve around work, there were many entertaining stories ranging from camping in the Scottish forests to English politics, which kept the conversation rather entertaining.

I was also granted the opportunity to stay a little longer in the UK, which allowed me to visit neighbouring academic institutions. Particularly, the Crick Institute in Holborn, where I got to witness research at the forefront. Thanks to the gracious hospitality of Dr Lucy Collinson and Dr Mari-Charlotte Domart, I learnt more about the 3-view CLEM technique powered by a Gatan Instrument.





*Figure 14: Dr Collinson, myself and Dr Domart at the Crick Institute in Holborn, London.*

I am sincerely grateful to ALS, JEOL UK and the MSSA 2014 organising committee for giving me the opportunity to attend MMC 2015. Specifically, I would like to thank Mr Dave Perret and Mr Rakesh Patel (ALS), who went out of their way to make sure that all travel arrangements were handled with ease and Mrs Amy Schobart (JEOL) who made my stay as welcoming as possible. I am incredibly grateful to MSSA 2014 for deeming me worthy of such an amazing award. Lastly, I'd would like to thank my supervisor Dr Ben Loos, without whom I would never gotten the opportunity, nor the confidence, to go to MSSA. I admire his determination and work ethic and can only hope to become half the scientist he is. I can honestly say that this conference was a once in a lifetime experience that has certainly made a big impact on me. I know that it will help me in my academic career and hopefully aid in me becoming a better scientist - potentially joining the ranks of those I was fortunate to witness in Manchester.



*Figure 15: The JEOL UK team at their exhibition stand*