

MSI Bursary Report

Kalani Moore –QEM 2017

In May 2017 I attended the Quantative Electron Microscopy (QEM) workshop/school in Balaruc-les-bains, France. This was the fourth edition of the prestigious school, held once every four years, which sees the brightest minds in electron microscopy converge to educate and learn together. Places at the two week event were limited to 100 "students" from all over the world, with a strong european and especially french presence. The format comprised of two lectures in the mornings and two practicals in the afternoons. Each lecture was given by a specialist in the field, and were rather specific, each dealing with a state-of-the art technique.



Many of these lectures dealt with topics I was not familiar with but they provided a valuable overview of alternative useful techniques and having PDFs of each lecture will be an invaluable resource for revision when looking to actually employ these techniques. Some lectures were directly applicable to my PhD project. Hearing from experts on core-loss EELS, plasmonics, light element detectors and HAADF optimisation was an amazing experience. One particular highlight was seeing a lecture and live remote operation of the superSTEM in Daresbury and seeing the phonon signal detected by EELS.



Following some excellent french cuisine and plenty of time to exchange ideas and opinions, the practicals took place in the afternoons. They were composed of either simulations, data analysis or familiarisation on the computers with all of the latest software available or demonstrations of how to employ various in-situ and spectroscopy methods on an FEI Talos and JEOL F200 with Gatan spectrometers and DENS solutions/Protochips in-situ holders. As my project involves In-situ spectroscopy on 2-D materials I took some important lessons from these. The opportunity quiz company engineers and applications experts was also brilliant.



Overall I felt that I learned loads and networked with some brilliant people and scientists. Thanks so much to the QEM organising committee, sponsors and the MSI for giving me this opportunity.

Kalani Moore

1st Year PhD student

University of Limerick
07/06/17

	Lundi	Mardi	Mercredi	Jeudi	Vendredi
9h	Geometric & Wave Optic	Digital Images	Quantitative TEM	Quantitative Diffraction	Phase & Microscopy
11h	Contrast of Defects	Coh. & Incoh. Imaging	Quantitative STEM	Quantitative Cristallography	Electron Holography
15h-30	16h Instrumental	μ in situ <small>Biasing Stressing</small>	μ in situ <small>Probing in Liquid</small>		
17h-30		#1 GPA	#1 HAADF		
		#2 Scripting	#2 CCD		
		Lib Instrumentals	Lib Cristallography		
	Lundi	Mardi	Mercredi	Jeudi	
9h	NanoOptics Principles	Core Loss EELS	4D Tomography	NanoFab & TEM	
11h	NanoOptics Practices	Chemical EDX & EFTEM	4D Environmental	Quantum Electron μ	
15h-30	μ Mystery Sample	μ Chemical <small>EDX EFTEM</small>	14h Myst. Sample debrief.		
17h-30	#1 Plasmons	#1 EELS	16h Daresbury Webinar		
	#2 Holography	#2 Tomography	18h QEM Quizz		