

NOMATEN HYBRID SEMINAR

Monday, JULY 4th 2022 13:00 (1.00PM CET)

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NCBJ, Maria/Ewa conference room at PNT

Applications and limitations of energy dispersive spectroscopy (EDS) in the SEM – optimizing quantitative analysis and mapping

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Abstract:

In this presentation we will discuss the SEM instrument parameters such as overvoltage and beam current on the minimum detection limit and EDS spectrum statistics with reference to peak identification (qualitative analysis). The statistical limitations of spectrum count rate on the precision and accuracy of quantitative analysis will be discussed. Finally, the applications, limitations as well as conditions to achieve “true” quantitative elemental mapping will be presented. The entire presentation will be presented in terms of the ISO standards for the EDS technique.

Bio:

Prof Mike Lee retired from the University of Limpopo as Director of the Electron Microscope Unit and lecturer in the Physics Department in 2007. The next two years were spent consulting and running training programs on SEM-EDS at a number of international laboratories. Prof Lee was also appointed as a South African delegate at the ISO 202 meetings, on standards for electron beam microanalysis. In 2010 Prof Lee was appointed at his alma mater, Nelson Mandela University Port Elizabeth South Africa, as a project manager to supervise the planning and construction of the custom designed building for the new double Cs aberration corrected JEOL ARM 200 TEM at the NMU Centre for High Resolution Electron Microscopy (CHRTEM). On completion of the building program in 2011 he was appointed as the Centre Manager for the CHRTEM. Presently Prof Lee is a research associate and training officer at the CHRTEM after retiring from the management position.