Smarter spectroscopy with WDS: When EDS isn't good enough

With the advent of silicon drift detector technology, EDS has undergone a revolution in performance. Modern Energy dispersive spectroscopy (EDS) detectors boast increased productivity (larger active areas and higher throughput) with vastly improved spectral performance (superior light element sensitivity and sharper energy resolution). These advances in EDS have been so rapid, that many believe the complementary Wavelength dispersive spectroscopy (WDS) is now obsolete. This conclusion overlooks the existing gaps in EDS technology and the concurrent revolution in WDS technology. The advent of the hybrid optic and parallel-beam WDS technique, coupled with a complete automation of the instrument has resulted in a modern WD spectrometer that effectively fills the existing, critical gaps in EDS technology.

This workshop reviews the advances in WDS technology and the analytical space where WDS effectively complements EDS analysis. Specific WDS application spaces reviewed include: (1) more accurate quantitative analysis; (2) reduced minimum detection limits; (3) trace element mapping, in particular for low energy x-rays; (4) analysis and mapping on the nano-scale; (5) parsing convoluted peak overlaps; particularly below 1 keV; and (6) WDS and EDS phase mapping.