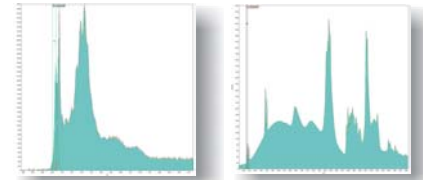


MonoCL SP

CL system for parallel spectroscopy



Based on the success of the versatile MonoCL3 and XiCLone systems, Gatan has developed MonoCL SP, a simplified, high performance cathodoluminescence (CL) system with core functions of parallel spectroscopy with panchromatic imaging. The speed of parallel spectroscopy opens doors to new applications on insulating and beam sensitive materials.



This new configuration is therefore ideal for forensic studies, mineralogy and any materials science applications where fast and precise spectroscopic characterisation without beam damage effects is essential. An option of full spectrum imaging is also available for enhanced analysis capabilities.

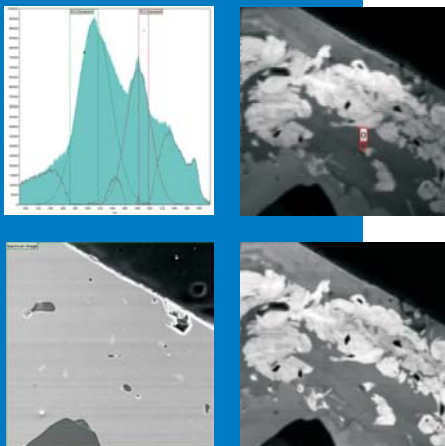
MonoCL SP can be configured for almost all SEMs, microprobes and analytical TEMs.

Accurate results

MonoCL SP features a new design of spectrometer with a fixed position grating to disperse the collected CL over a wide CCD array. The cooled CCD camera allows fast acquisition of a CL spectrum to minimise charging or beam induced changes to the specimen. The 20 micron CCD pixel size enables high spectral resolution results, a specification of growing importance in stress mapping and forensic applications.

Gatan's Digital Micrograph™ software with CL "plug-in" ensures flexible data acquisition plus a simple and accurate spectroscopic calibration, using the internal spectral light source provided.

Importantly, MonoCL SP includes panchromatic CL imaging to allow the region of interest to be characterised on the specimen before performing CL spectroscopy or to enable imaging with high spatial resolution.



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GATAN DATA SHEET

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The high efficiency CL collection mirror and light guide within the SEM chamber is retractable, and removable with the chamber vented. Options of special mirrors are available for when space is limited e.g. in microprobes and TEM and for multi-signal collection i.e. when good SE, BSE and possibly EDS signals are required simultaneously with CL.

MonoCL SP can be supplied with, or upgraded to, spectrum imaging whereby the CL spectrum is mapped at every pixel position in a line or area scan. Powerful peak fitting software can then extract critical new data which would otherwise be hidden. Examples of this include maps of very small chromaticity shifts, FWHMs, and "shoulder-peaks".

System specification

MonoCL SP spectrometer with internal toroidal mirrors
Direct optical coupling to SEM chamber
Detachable, diamond turned, paraboloidal CL collection mirror
75mm mirror retraction mechanism
Micrometer adjustment of single entrance slit
Single grating on single mount (choice of alternative dispersion / blaze wavelengths)
Manual control of central wavelength on array
Optical switch between spectrometer and PMT detector
Multi alkali PMT, 185-850nm sensitivity with integral pre-amplifier
Insertable, in-line spectral lamp
PA10 PMT imaging control electronics with LED readout of HT, and overload protection*
Peltier cooled, 1340 x 100 Front illuminated, UV coated Si CCD, 200-1100nm sensitivity
Internal shutter giving choice of automatic dark noise removal
Digital Micrograph™ with MonoCL SP "plug-ins"

Options

Additional grating(s) e.g. with different blaze wavelength or dispersion
MEXT extended retraction mechanism (160mm instead of 75mm)
DigiScan™ digital beam control with single A/D input
Additional A/D inputs (up to 3) for simultaneous acquisition from other detectors
CL Spectrum Imaging plug-in. Includes NLLS Gaussian peak fitting routines. Includes extra RAM for PC
MSM, multi-signal mirror
C1002 nitrogen cooling stage module or CF302 helium cooling stage

* NB : live CL imaging on SEM requires the presence of a suitable AUX input (scan synchronous analogue voltage 0.2 to 6V of either polarity). DigiScan™ requires free external scan input controls.

For increased CL imaging and serial spectroscopy functionality please see MonoCL3 brochure. MonoCL SP is upgradeable to full MonoCL3 functionality but this requires a return-to-factory conversion.



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