

ChromaCL2 iBSED Detector

Live color cathodoluminescence (CL) imaging is an important technique used in mineral analysis laboratories world-wide. From oil and gas exploration to geochronology to mineral growth studies, the ChromaCL2™ iBSED system delivers a fresh understanding of problems old and new.

Color CL images reveal phase and trace element distribution changes in minerals over a large field of view so you can easily visualize texture including: chemical overprinting and overgrowths, growth zonation, internal healed fractures, authigenic and detrital quartz and more.

Color CL images are acquired simultaneously with topographic and compositional information from secondary and back-scattered electron signals. With the ChromaCL2 iBSED detector, all signals are measured simultaneously with excellent signal-to-noise in a single scan of the electron beam thanks to Gatan's unique, patent-protected (US 8410443 B1), high collection angle collection mirror and integrated backscattered electron detector.

ChromaCL2 system has a range of novel options to enhance the analytical capabilities available to today's microscopists:

Image carbonate-based minerals—Widen the materials that can be investigated in the SEM using color CL. Many carbonate-based minerals appear streaky in scanned CL images due to phosphorescence. Reveal hidden texture obscured by streaking in the carbonate and other inclusions.

Field stitching—Extend the horizons of your CL analysis with the ability to survey large areas of a specimen automatically. DigitalMicrograph® software takes control of the SEM stage and electron beam to acquire an array of images, which can then be stitched together digitally to form a super-image.

Benefits

- **Live color imaging:** Easy identification of changes in CL emission
- **Parallel detection of wavelengths:** Color CL images in a single scan of the electron beam for speed and unambiguous data interpretation
- **Diamond-turned collection optics:**
 - Up to 50x improvement in collection compared to basic CL detectors
 - Avoid damaging the sample through use of lower beam currents
 - Enhancing productivity and enabling high spatial resolution results to be achieved

Large field of view: Optical design providing efficient collection over a field of view extending many hundreds of microns

- **Fixed gain, integrated electronics:** Simple data acquisition routine requiring a single click of the mouse

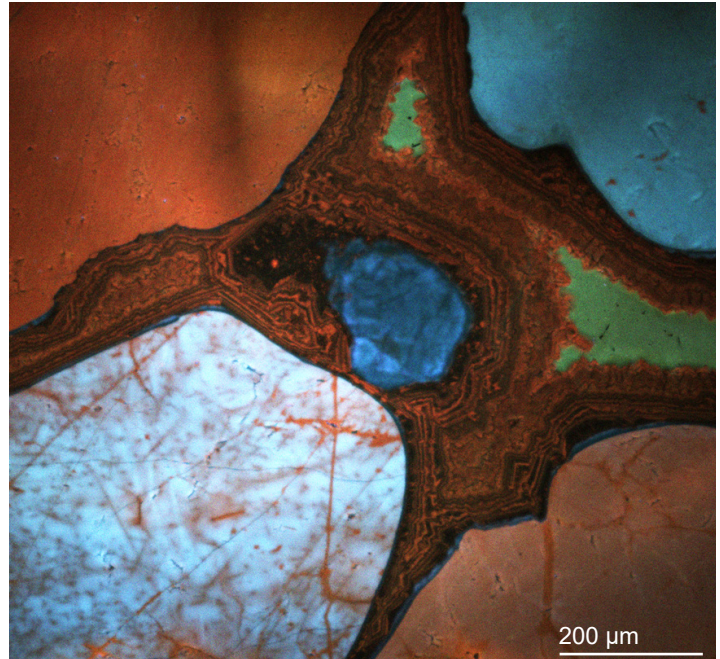


Figure 1. Quartz arenite, granitic and metamorphic source. Has well-developed overgrowth cement with multiple zoning. *Image courtesy of Dr. J. Schieber, Geosciences, University of Indiana.*

- **Retractable:** Up to 150 mm full retraction
- **Defined insertion position:** Simple setup for optimum light collection
- **Enhanced dynamic range:** Record images with up to 600,000 counts per second (cps)
- **Field stitching:** View large fields of view with automated montage software
- **Integrated BSED:** Simultaneous detection of secondary and backscattered electrons and cathodoluminescence
- **Phosphorescence reduction:** Image samples which contain carbonates
- **Computer platform:** Windows 7 64-bit operating system

Applications

- Geosciences
- Mineral chemistry
- Oil and gas exploration

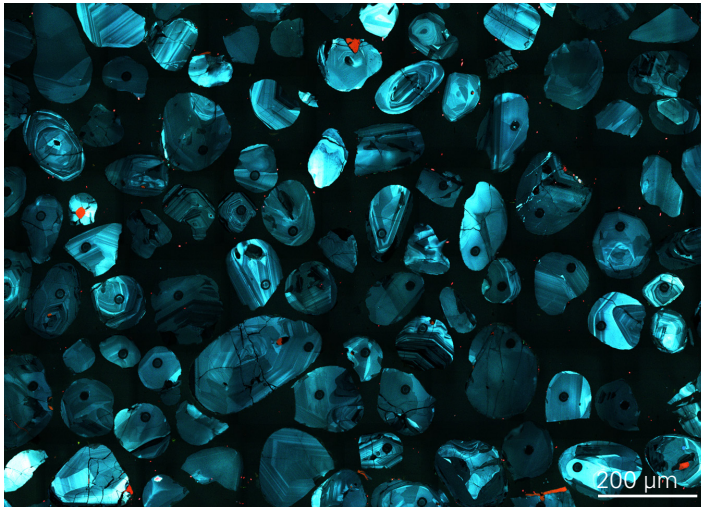


Figure 2. Color cathodoluminescence imaging used to reveal metamorphic rims in highly zoned zircon grains. Acquired using ChromaCL2 and DigitalMicrograph field stitching software module.

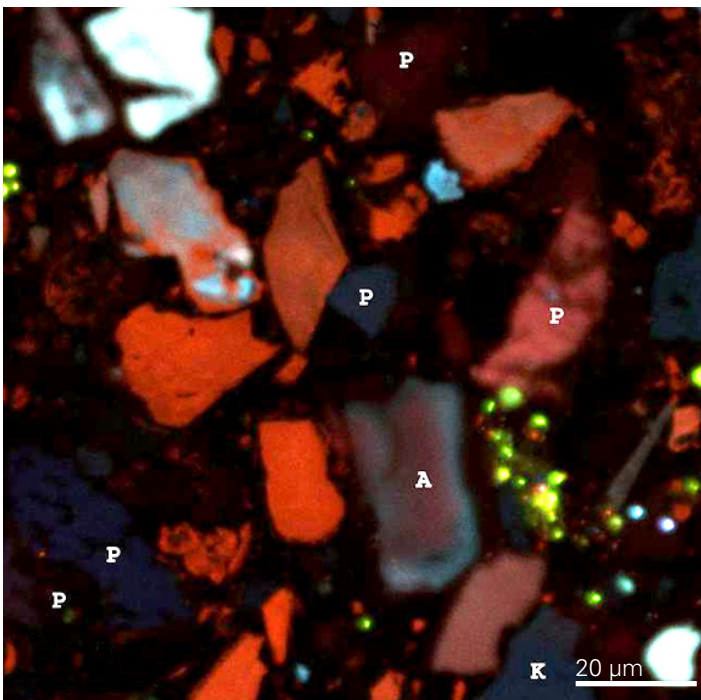


Figure 3. Color cathodoluminescence imaging used to reveal single-source dominated provenance Barnett shale with low-grade metamorphic quartz grains revealed. Sample prepared by the Ilion+® ion beam tool. *Image courtesy of Dr. J. Schieber, Geosciences, University of Indiana.*

Ordering

Model	Description
ChromaCL2 iBSED	ChromaCL2 System (iBSED)
CHOFi	ChromaCL2 iBSED Removable Optical Filter Kit
CHFS64	ChromaCL Field Stitching Suite (64-bit)

Specifications are subject to change.

Other products to consider

- Monarc™ CL detector

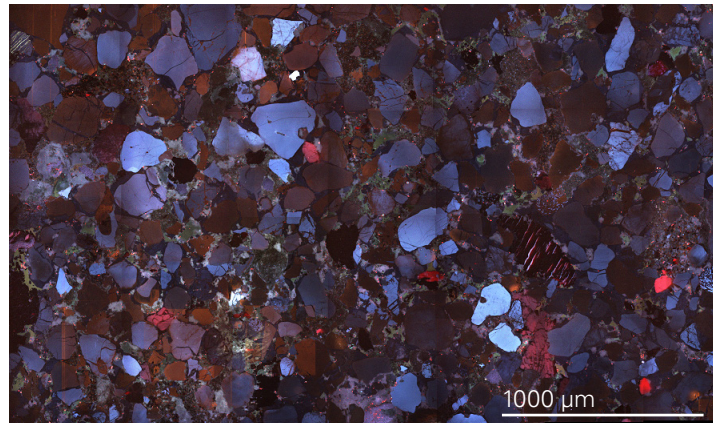


Figure 4. Reservoir quartz of mixed provenance displaying healed fractures and chemical overgrowths. Acquired using ChromaCL2 and DigitalMicrograph field stitching software module.

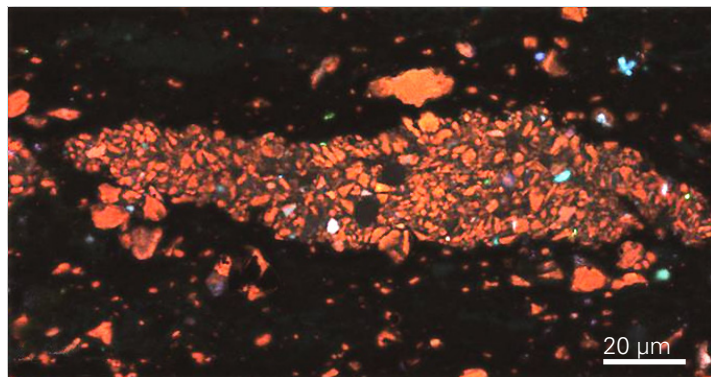


Figure 5. Provenance identification in shale. Single-source dominated provenance Barnett shale (Mississippian) Texas, low-grade metamorphic Ouachita orogeny. Sample prepared by the Ilion+ ion beam tool. *Image courtesy of Dr. J. Schieber, Geosciences, University of Indiana.*