The quantitative birefringence imaging system that measures retardance and slow-axis orientation in each pixel in seconds.

Adding Abrio™ IM to your facility means enabling a new and powerful tool to detect stress and strain in birefringent samples.

Abrio™ IM imaging systems combine a unique liquid crystal-based orientation-independent polarized light technology, patented imaging algorithms, and easy-to-use software to quantitively measure and analyze low-level birefringence. The system allows for real-time measurement of extremely low-level birefringence in samples such as glass, plastics, optical fibers, and discs having retardance values from 0.02nm to 273nm.

The Abrio IM imaging system includes intuitive Windows®-based software and a features a versatile design for easy integration into existing protocols.
**Stress measurements along an optical fiber**

The Abrio™ IM imaging system can generate quantitative data to better assess the thermo-mechanical stress that may arise and result in cracking when newly manufactured optical fiber is cooled to room temperature.

**Anisotropy of nematic liquid crystals**

The Abrio IM imaging system can be used to measure the retardance magnitude and orientation in nematic liquid crystals. Using birefringence measurements, various methods of order parameter determination can be compared. In addition, birefringence measurement results can be used to determine perishability anisotropy of nematic liquid crystal.

**Birefringence distribution in silica**

The Abrio IM imaging system is capable of imaging and measuring the birefringence distribution which may develop or exist in crystalline material. Isotropic material may become anisotropic under mechanical and thermally induced stress, and the refractive index inside the material becomes locally anisotropic. Knowledge of birefringence distribution can be applied to improve the optical design process.

**System features**

- Capability to quickly and accurately measure retardance (nm) and slow-axis orientation (deg) per pixel
- Automatic background correction
- Retardance sensitivity of 0.02 nm
- Full image calculations in under 3 seconds
- Orientation-independent polarization

**Software features**

- Movie processing and analysis tools
- Live retardance streaming mode
- Reporting tools
- Pseudocolor and orientation vector map overlays

**Microscope-based system components**

- LC universal compensator, circular polarizer, and 546-nm interference filter in microscope-specific housings
- CCD camera module with:
  - USB 2.0 interface
  - 12-bit cooled 2/3-inch optical format CCD sensor
  - 0.65x relay lens built-in
  - Electronics controller for universal compensator
  - 1024 x 1392 pixels with 6.45 x 6.45 μm pixel size
  - Binning capability
- 1x C-mount adapter
- Desktop computer with LCD monitor

**Macroscope-based system components**

- Macroscope optical stand
- Illumination module
- CCD camera module
- Desktop computer with LCD monitor

**About CRI**

Cambridge Research & Instrumentation (CRI) develops and markets optical imaging systems to advance biomedical research, digital pathology and molecular-based drug and diagnostic development. CRI’s patented systems enable researchers and clinicians to quantitate multiple disease and drug response markers in intact tissue samples, at a cellular level or in living small animals. CRI’s products integrate a unique multispectral imaging technology with proprietary image analysis algorithms to achieve unparalleled accuracy and sensitivity, rapidly and cost-effectively.

[www.cri-inc.com](http://www.cri-inc.com)