

## **X-ray Microscopy - Past, Present and Future**

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The attractiveness of the short wavelength and penetrating power of X-rays for microscopy applications has been recognized for at least the past 60 years. To build a practical high resolution X-ray microscope requires a suitable source of X-rays, and high resolution optics. These have become available only with the construction of dedicated light sources, and the development of e-beam fabricated zone plates. Today X-ray microscopy is undergoing a period of dramatic growth. There are full field, scanning, and/or photoemission microscopes operating at most synchrotron light sources, addressing problems in magnetism, environmental science, biology, polymer science and other fields. Novel contrast mechanisms give these instruments the ability to display elemental and chemical maps, as well as information on magnetic domains.

While many of the novel imaging characteristics depend on the tuneability and variable polarization characteristics of synchrotron light sources, the growing interest in X-ray microscopes has led to the development of stand-alone laboratory instruments as well.