

## Special Topics Section—Two-Dimensional Detectors

X-ray photographic plates and film were the first X-ray detectors and continue to find applications in many diffraction laboratories. With the development of electronic based XRD wire-grid position sensitive detectors, image-plate storage phosphor detectors, and CCD detectors, a significant reduction in data collection time coupled with an increase in data quality has resulted. With the cost of these detectors significantly reduced from just a few years ago, it is common to find two-dimensional XRD instruments in academic, government and industrial laboratories.

X-ray detector technology is continuing to move forward. There are new advances in X-ray detectors as demonstrated by the development and recent commercialization of medical digital radiographic (DR) X-ray detectors. These systems are based on a photoconductor layer coupled to an active-matrix array to create a flat-panel X-ray image detector. These digital radiographic systems convert X-rays directly into an electric charge using amorphous selenium, in contrast to indirect electronic detector systems mentioned above that convert X-rays to light as an intermediate step. With current detector active image sizes up to 35×43 cm the future looks promising to adapt DR technology for use as large area XRD detectors.

Last year, I had the opportunity to be the editor of a special topics section in *Powder Diffraction* that highlighted X-ray optics. This topic and the timing of publishing in June were intended to compliment an X-ray optics workshop at the 51st annual Denver X-ray Conference held in August of 2002. With the success of the special topics section, Ting Huang, *Powder Diffraction* Editor-in-Chief, approached me with another opportunity to help put together a special topics

section for 2003. This time, the focus would be on X-ray diffraction detectors and again we would use the June issue to tie into a Denver Conference workshop in August 2003, Two-Dimensional XRD.

I'd like to thank the authors who contributed the papers that comprise the special topics section of this issue. The schedule was tight for getting the papers written, reviewed, revised, and submitted on time to the publisher. I would also like to thank Ting Huang for giving me the chance to again work on a special-topic publication, and Tim Jenkins, *Powder Diffraction* Managing Editor, for making sure everything was in place for this June publication. The result is a collection of excellent reference articles that will serve as an educational tool for the diffraction community. Enjoy!

Tom Blanton  
*Special-Topic Editor*

Note from Editor-in Chief:

Dr. Tom Blanton is a Research Associate at Eastman Kodak Co., Rochester, New York, and has been involved in the field of X-ray powder diffraction for over 20 years. He is also an Associate Lecturer at the University of Rochester, Department of Mechanical Engineering. In addition to conventional XRD techniques, his interests include the use of pole figure analysis, in situ high-temperature XRD, and synchrotron radiation for materials analysis. Tom is an International Center for Diffraction Data Fellow and is active with the ICDD educational programs, most recently completing successful Grants-in-Aid workshops held in Lviv, Ukraine and Nova Friburgo, Brazil.

Ting C. Huang  
*Editor-in-Chief*