

Applications of synchrotron radiation to materials research

Gopal Shenoy^{a*} and P. James Viccaro^b

^aAdvanced Photon Source,
Argonne National Laboratory,
Argonne, IL 60439, USA, and

^bConsortium for Advanced Radiation Source, University of Chicago,
Chicago, IL 60637, USA

The symposium on *Applications of Synchrotron Radiation to Materials* has been held every year as a part of the International Materials Research Congress (IMRC) in Cancun, Mexico, since 2002. This symposium was sponsored by the Office of the Basic Energy Sciences, US Department of Energy and by the sponsors of the IMRC. The broad theme of the symposium was to address the scientific opportunities at synchrotron X-ray facilities in materials research. Presently the use of various synchrotron radiation tools has become an important component of materials characterization, and the symposia have provided an opportunity for the international leaders and newcomers to the synchrotron radiation field to exchange ideas and discuss the recent advances.

The presentations in the symposium, held in conjunction with XII IMRC on 19–20 August 2003, covered diverse areas of materials research: collective excitations in condensed matter; dynamics of thin film growth; probing materials at micro- and nano-scales; bonding in non-crystalline oxides; fuel cells, catalysts and Azul Maya; capturing transient structures; advances in material research at LNLS; materials under pressure; X-ray microanalysis of materials for the 21st century; advanced materials characterization for future nanotechnologies; self-assembled germanium islands on silicon; inhomogeneous ground state of cuprate superconductors; magnetic imaging of ferromagnetic bilayers; ferroelectric switching; thin films of magnetic materials; nanoparticles in thin films, interfaces and composite material; X-ray vision of fuel sprays; and examples for applications of X-ray FEL in biology.

This special issue of the *Journal of Synchrotron Radiation* includes reviews of the subject based on a limited selection of presentations, and they emphasize the breadth and depth of the applications of synchrotron radiation to modern materials.

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