

APPLICATION OF SYNCHROTRON RADIATION AND NEUTRON BEAMS TO THE STUDY OF NANOMATERIALS AND BIOMATERIALS

S.K. Sinha, UCSD, La Jolla, California

Abstract

The development of high-brilliance synchrotron radiation sources and high intensity neutron sources have provided powerful new methods for probing the structure and dynamics of nanostructured materials. We shall review some of the recent applications of these techniques to the study of nanomaterials and biomaterials. These include both scattering and real-space imaging methods and the use of coherent X-ray beams for studying nanostructures, the use of neutron scattering and resonant magnetic X-ray scattering to study magnetic nanostructures, and the use of inelastic neutron scattering and X-ray photon correlation spectroscopy to study their dynamics. Examples will be given of application of such techniques to the study of magnetic dot and hole arrays, structure of confined nanofluids, films exhibiting exchange bias and spin valve effects, spin injection into semiconductors, and biomembranes.

**PAPER NOT YET
RECEIVED**