

# Synchrotron-based Techniques In Soils And Sediments

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Over the past 20 years, synchrotron-based research applications have provided important insight into the geochemical cycling of ions and the chemical and crystallographic properties of minerals in soils and sediments. Of particular significance is the understanding of local coordination environments with the use of X-ray absorption spectroscopy. The high flux and brightness of the X-ray beams have allowed researchers to work at environmentally relevant concentrations. The use of focusing mirrors and apertures which allow for mapping and trace particle surfaces, microbes, roots, channels and elements at the micron and at a nano-meter scale in 2 and 3D have also been a great enhancement to science. This book provides the most up-to-date information on synchrotron-based research applications in the field of soil, sediment and earth sciences. Invited authors provide chapters on a wide range of research topics including multiphase flow and transport processes (physical aspects), rhizosphere and microbial life (biological aspects), and dynamics of C, N, S, P and heavy metals and metalloids (chemical aspects). In addition, perspectives on the impact of synchrotron based applications, particularly X-ray absorption spectroscopy, and the role of synchrotron applications in remediation, regulatory, and decision making processes are considered. EAN/ISBN : 9780080932842 Publisher(s): Elsevier Science Format: ePub/PDF Author(s): Singh, Balwant - Gr?fe, Markus

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