During the last two decades, remarkable and often spectacular progress has been made in the methodological and instrumental aspects of x–ray absorption and emission spectroscopy. This progress includes considerable technological improvements in the design and production of detectors especially with the development and expansion of large-scale synchrotron reactors All this has resulted in improved analytical performance and new applications, as well as in the perspective of a dramatic enhancement in the potential of x–ray based analysis techniques for the near future. This comprehensive two-volume treatise features articles that explain the phenomena and describe examples of X–ray absorption and emission applications in several fields, including chemistry, biochemistry, catalysis, amorphous and liquid systems, synchrotron radiation, and surface phenomena. Contributors explain the underlying theory, how to set up X–ray absorption experiments, and how to analyze the details of the resulting spectra.

X-Ray Absorption and X-ray Emission Spectroscopy: Theory and Applications:

•Combines the theory, instrumentation and applications of x-ray absorption and emission spectroscopies which offer unique diagnostics to study almost any object in the Universe.

•Is the go-to reference book in the subject for all researchers across multi-disciplines since intense beams from modern sources have revolutionized x-ray science in recent years

•Is relevant to students, postdocurates and researchers working on x-rays and related synchrotron sources and applications in materials, physics, medicine, environment/geology, and biomedical materials