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results on the processing of these materials. Advanced characterization methods, techniques, and new instruments are emphasized. Areas of interest include but are not limited to: Extraction and processing of various types of minerals, process-structure-property relationship of metal alloys, glasses, ceramics, polymers, composites, semiconductors, and carbon using functional and structural materials Novel methods and techniques for characterizing materials across a spectrum of systems and processes Characterization of mechanical, thermal, electrical, optical, dielectric, magnetic, physical, and other properties of metals, polymers, and ceramics including battery materials Characterization of structural, morphological, and topographical natures of materials at micro- and nano-scales Characterization of extraction and processing including process development and analysis Advances in instrument development for microstructure analysis and performance evaluation of materials, such as computer tomography (CT), X-ray and neutron diffraction, electron microscopy (SEM, FIB, TEM), and spectroscopy (EDS, WDS, EBSD) techniques 2D and 3D modelling for materials characterization.