Electrochemical methods for synthesizing different nanomaterials are elaborated. Structures, synthesis methods/ techniques of different electroceramics and ceramic oxides e.g. Pervoskite, Columbite and Spinel are described. Conductive boron-doped diamond electrodes with recent work on the fabrication are summarized in detail. It takes up important role as novel electrode materials with fascinating applications in electroanalysis, electrosynthesis and environment. Recent progress in electrochemical synthesis strategies for the fabrication of electrocatalysts for fuel cell reactions like methanol oxidation reaction, ethanol oxidation reaction and oxygen reduction reaction, electrode materials for Li-ion batteries and supercapacitors and various synthesis conditions adapted during the developed electrodeposition are thoroughly discussed. Electrochemical synthesis and electrophoretic deposition of perovskites and 2D transition metal dichalcogenides are also been added. Finally, the challenges involved in the current electrochemical synthesis strategies and future perspectives of electrochemically deposited materials for energy conversion and storage systems are conveniently presented.

Balaprasad Gangaram Ankamwar works as Professor in the Dept. of Chemistry, S. P. Pune University. He did research mainly on 'Biosynthesis of Nanomaterials and their Applications' at National Chemical Laboratory, Pune and Post-Doctoral Research jointly at National Taiwan University and Genomics Research Centre, Academia Sinica, Taiwan.

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Chapter-7

Different Synthetic Strategies of Nanocomposite Based Electrode Materials for Green Energy Technology

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