and R-GO. With the help of schematics, MoS_2/graphene heterostructure memory layout and energy-band diagrams are presented.

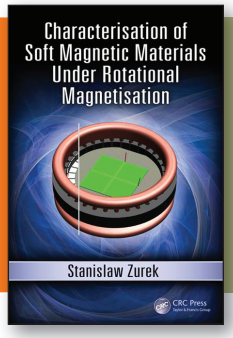
Fabrication and applications of electric double-layer capacitors based on graphene-related materials are presented in the third chapter. Basic physics principles of supercapacitors are discussed with the help of the Helmholtz model and respective diagrams and V-E characteristics. Ragone plots of graphene supercapacitors, SEM and TEM images of various graphite collectors, and images of flexible electrodes are useful for readers to understand the device characteristics and their cross-sectional views. At the end, graphene-based composites for supercapacitors are briefly discussed.

The fourth chapter deals with physical phenomena and industrial interest behind other 2D materials, such as silicon, germanium-based materials, stanene, transition-metal dichalcogenides (TMDs), phosphorene, carbides, and nitrides. The quantum Hall effect and quantum spin Hall effect in 1D systems are explained with magnetic theories. Fabrication of transistors using TMD, their morphology, *I–V* characteristics, and device illustrations are well explained. At the end, various applications (e.g., spintronics, thermoelectric) of these 2D materials are listed.

The fifth chapter discusses the basics of spintronics. Graphene-based spintronic devices, their fabrication methods, and characteristics of spintronic devices are discussed. Main parameters for spin are measured in different materials compared to graphene and are tabulated.

In summary, this is an outstanding book covering many nanodevices based on graphene, TMD, and other 2D materials. Fundamental properties and fabrication methods of recent graphene-based 2D materials are well covered. This book is mainly targeted toward researchers. Recent references are listed at the end of each chapter. There are no solved problems or homework problems provided. I strongly recommend this book to researchers interested in device fabrication based on graphene, carbon-based materials, and other 2D materials.

***Reviewer: K. Kamala Bharathi**, SRM Institute of Science and Technology, India.*



Characterisation of Soft Magnetic Materials Under Rotational Magnetisation

Stanislaw Zurek

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Soft magnetic materials, including electrical steels, soft magnetic composites, and ribbons, play a key role in energy conversion. In particular, electrical steels, which are alloys of iron and up to 6.5 wt% silicon with tiny amounts of other elements, have been widely used for green energy equipment from traction motors to wind turbine generators.

For most of the applications, the materials experience constantly varying magnetic fields in both magnitude and direction. The response of the magnetic materials to the applied magnetic field, and the resultant loss, is one of the major concerns for magnetic device designers. There are many efforts and published papers on rotational power-loss measurement. This book provides a comprehensive review of different measurement techniques of soft magnetic materials.

The first chapter includes a brief introduction to magnetism, magnetic materials, and, most importantly, the loss mechanism. The topics covered in this chapter are broad, and a better understanding may demand a closer look at the references. In chapter 2, principles of four major measurement methods, torque metric, thermometric, field metric, and watt metric, are presented. Chapter 3 covers sensors, including principles and implementation. More importantly, the practical comment sections address the typical problems during measurement and also the problems inherent to the device or the data-processing procedure.

Chapter 4 discusses apparatus for measurements, which forms the core of this book. In addition to the signal excitation and collection issues, sample preparation techniques are also discussed, as the properties of electrical steels are extremely sensitive to processing parameters. Measurement errors are the focus of chapter 5. Both sources of error and methods for error evaluation are introduced. Chapters 6 and 7 discuss measurement equipment and measured results, with illustrations of measurement equipment. It would be beneficial to highlight the pros and cons of the equipment and the linkage between the measured result and the properties of the materials. In chapter 7, some numerical techniques in data processing and approximate analytical methods in rotational loss calculation are included.

In summary, the book focuses on real-life engineering applications. With no worked examples and homework problems, it is not assumed to be a textbook. It is, however, an excellent reference book with detailed explanations of state-of-the-art measurement techniques, equipment, and data-processing skills. More details on specific topics can be found from the references, which are complete and up to date. Overall, the book is well written, and all figures are of high quality. Students or professionals who are working in or planning to work in the field of soft magnetic materials characterization would find it quite instructive. Readers with an engineering undergraduate degree should have no problem comprehending most of the content.

***Reviewer: Wanfeng Li**, Research Engineer, Ford Motor Company.*

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