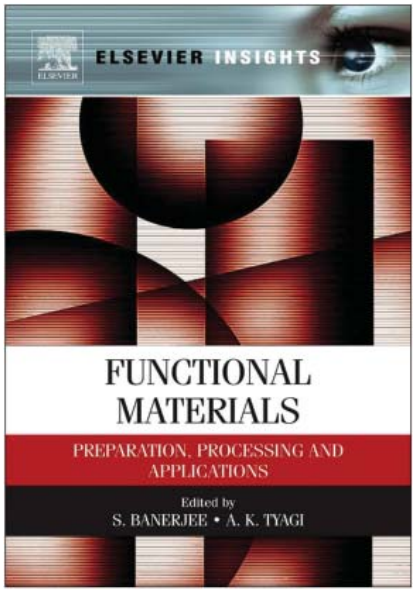
Functional Materials: Preparation, Processing and Applications

(Eds. S. Banerjee and A. K. Tyagi)
Elsevier Insights (ISBN: 978-0-12-385142-0)

Recently a book titled "Functional Materials: Preparation, Processing and Applications (Eds. S. Banerjee and A. K. Tyagi)" was published by Elsevier Insights. The major highlight of this book is that all the chapters have been contributed by scientists from BARC. Thus a wide spectrum of research on functional materials, being carried out at BARC, could be showcased.

The functional materials are categorized solely based on their functional properties and their prospective applications. They have assumed very prominent position in several high tech areas. The book encompasses a wide panorama of functional materials such as super-strong materials, soft materials, magnetic materials, multi-ferroics, spintronics, carbon based materials, conducting polymers, optical materials, glasses, nuclear fuels, corrosion resistant materials, materials for hydrogen production and storage, and electro-ceramics. Each chapter broadly discusses physical basis of the functionality, materials synthesis and processing, characterization, properties and applications. We hope that this book will be of use to both new and experienced researchers in the field.



Thoria-based Nuclear Fuels

Thermophysical and Thermodynamic Properties, Fabrication, Reprocessing, and Waste Management.

Dr. D. Das, Dr. S. R. Bharadwaj (Eds.)
Chemistry Division

This book presents the state of the art on thermophysical and thermochemical properties, fabrication methodologies, irradiation behaviours, fuel reprocessing procedures, and aspects of waste management for oxide fuels in general and for thoria-based fuels in particular. The book covers all the essential features involved in the development of and working with nuclear technology. With the help of key databases, many of which were created by the authors, information is presented in the form of tables, figures, schematic diagrams and flow sheets, and photographs. This information will be useful for scientists and engineers working in the nuclear field, particularly for design and simulation, and for establishing the technology. One special feature is the inclusion of the latest information on thoria-based fuels, especially on the use of thorium in power generation, as it has less proliferation potential for nuclear weapons. Given its natural abundance, thorium offers a future alternative to uranium fuels in nuclear technology. In closing, the latest information on conventional uranium and plutonium fuels is also provided.

This book is published by Springer-Verlag, London (2013), 418 Pages and 173 Illustrations.