

Preface

Materials is the material base of human civilization, and an important milestone in the development of human civilization. The Stone Age, Bronze Age, and Iron Age of human history are all important symbols of the era with materials. The human development history is the history of understanding, creation, development and utilization of materials, and the invention, development and application of new materials has improved the ability of human being to understand and modify the nature to a new level.

Materials fill the world and are everywhere in the world we live in. They could be various components and parts of semiconductor integrated circuit chip in the size of micro-nano, or rockets, airplanes, ships and high-speed trains as large as tens and hundreds of meters. Furthermore, in our daily life from house we live, clothes to we wear, mobile phones in the hand and notebooks on the desk, they are all related to materials. Materials change our future, and the continuous emergence of new materials have been advancing the sustainable development of technology and the society. Therefore, to study and develop the materials has become a consensus.

The aim of editing and publishing the series books of “*Exploring New materials*” is to popularize the new materials knowledge, and to guide

people to enter the miraculous and wonderful materials world, so they could feel and recognize the extensive and profound materials knowledge, and share the magic and mystery of materials kingdom.

This book is the first volume of the series “*Exploring New Materials*”, including new knowledge in the fields of new energy materials, environment-friendly materials and information materials. Authors of this volume are experts who have engaged in the research, education and industrialization of new materials for a long time.

We sincerely appreciate for the guidance and supports during the compiling and publication of this book from Chinese Association for Science and Technology (CAST), International Union of Materials Research Societies (IUMRS) and Yiwu Research Institute of Fudan University.

Materials make life better. Please open your heart and enjoy the mysterious world of materials!

Editors-in-Chief

Prof. Han Yafang

Professor of Beijing Institute of Aeronautical Materials, past president of IUMRS

Prof. Pan Fusheng

Academician of Chinese Academy of Engineering, professor of Chongqing University, China