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## Preface

At present, Steel is one of the most common material widely used in the world, both for structural and functional applications. Steel has been the basic material for weaponry, agriculture, construction, etc. in the human society since the beginning of iron age, and now it is still playing very important roles in the world. It is generally believed that steel is really a kind of advanced materials due to its advantages during processing, fabrication, applications, and also recycling. People cannot image what the world would be if there be no steel around us.

Steels have been widely using for construction, automobile, machinery, energy, transportation, daily life, etc. in this special occasion that people take much more care with the climate change and global warming. Will steels still play an important role to our society in the future? Yes, it will be. More advanced steel products with the characteristics of high performance, low cost, easy fabrication, low tolerance, and environment benign have been developed to meet the demands from both market and environment protection. It seems there is no stop of this advancing trend.

The development of steel products is dependent on the steel knowledge we have. Although there have been a good accumulation of steel knowledge since the massive production of liquid steel, the new phenomena and roles in steels have still been investigated in recent years. Now people involved in steel research, steel processing and steel applications are concerned more and more with the progresses of steel science and technology than ever before, and have made great contributions to steel knowledge. This is one of the reasons why steel products change year by year. In order to illustrate the current status of steels, the editors of this book decided to ask outstanding professors and researchers all of the world to write a review on their research fields on the occasion of ICAS 2010.

The First International Conference on Advanced Steels was held at Guilin, China, November 8–11, 2010. The International Conference on Advanced Steels (ICAS) is the merging of two international series conferences: “International Symposium on Ultrafine Grained Structures (ISUGS)” and “International Conference on Advanced Structural Steels (ICASS)”. Over 270 papers have been presented in the Conference. It was really a platform for people all over the world to share their contributed works in steels with their colleagues effectively. ICAS 2010 will cover almost every aspect of steels: physical metallurgy, steel grades, processing and fabrication, simulation, properties and applications, etc. It is a comprehensive conference on steel products and technologies. Plenary and keynote speakers are very active in the relative steel fields, and are invited to illustrate their works in this specific proceedings in detail.

The aim of this book is to introduce steel researchers and technologists to the understanding of present status of different kinds of steels and relative technologies. It covers general review on steel industry, physical metallurgy, HSLA steel, automobile

steel, specialty steel, processing and fabrications. It is the summary of steels over past decades and also the forecast of advanced steels into the future. I believe physically that this specific book would help people to have the progresses of steels in hand.

Beijing, China

Rang Cai

Advanced Steels

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