Preface

This topical volume includes ten invited papers that cover chosen areas of the field *solid phase transformations*. The first two contributions represent a burgeoning branch – *computer simulation* of physical phenomena. Following three articles deal with *thermodynamics* of phase transformations as a basic theory describing the phenomenology of phase changes in the matter. Very interesting *interrelation*s between the phenomenology of phase transitions and the microstructure appear recently. The next paper presents the interconnections between the structural stability and electronic structure of phases. Two articles follow that are devoted to *displacive transformations* where there are many open questions. Influence of *pressure* upon the phase transition has not been studied too frequently up to now in spite of the fact that pressure is a natural variable parameter of both experiments and technological processes. It should be understood simply as another dimension in phase diagrams. The next paper deals with its effect upon the phase transformation in hydride phases. *New materials* emerging as potential solutions for demanding technical applications require attention of engineers and researchers – the last contribution reviews the recent developments in Co-based alloys.

Editors

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