Introduction

Faculty of Materials Engineering and Metallurgy was established in 1966 and currently is one of the 13 Faculties of Silesian University of Technology, located in Katowice. At present the faculty structure includes four departments: Metallurgy, Materials Technology, Materials Science and Management and Computer Science. The Faculty employs 38 professors and associate professors as well as 120 doctors (PhD). Scope of research activities includes materials engineering and metallurgy. The works carried out at the faculty are focused on research and development of advanced materials and their potential applications. Many scientific investigations are connected with problems of new technologies, formation the structure and properties of lightweight materials.

This is the next collection of 30 articles presenting the results of research in scope of light metal alloys. That issue include three chapters: I – aluminium alloys, II – magnesium alloys and III – titanium alloys.

Chapter I presents the subjects relating to the manufacturing of aluminum alloys, grain refinement and welding joints. This chapter presents also result of investigations concerning methods of obtaining and properties of aluminium matrix composites.

Chapter II contain the papers presenting the results of researches carried out on conventional and new casting magnesium alloys. The first group of articles concern the effects of modification on the structure and properties of casting alloys. Following papers present results of researches on plastic deformation of Mg alloys. Subsequent articles cover topics related to the welding technologies. Last part of the chapter concern the magnesium matrix composites.

Results of researches carried out on new generation of titanium alloys are presented in Chapter III. Papers included in this section concern the microstructure and properties Ti-Al base alloys. As well, possibilities of heat treatment and diffusion brazing of Ti alloys are discussed.

This project is the second in the series of volume in the range of light metal alloys. The authors are planning to continue the series and publish every year.

Editors.

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