

Preface

This thematic issue introduces the latest research results in materials science.

The possibilities for hydrogen storage in the synthesised high entropy alloys, designed on the Hume-Rothery criterion, are analysed in the first chapter. The prepared materials were characterised from a structural point of view as a basis for further experiments to describe the parameters of hydrogen storage in metal hydrides. There was also examined the copper slag from Bergwerk. The metallurgical process that led to the presented slags is unknown, and it has not yet been clarified whether this method of copper extraction has technological advantages.

The corrosion behaviour of structural materials and some methods for their corrosion protection are analysed and presented in the next chapter.

Special ceramic materials such as piezoceramics for energy and information storage, ferroelectric and colourless glasses are considered in the third chapter.

The last chapter is devoted to researching functional thin films' properties and synthesis technologies and the optical properties of gallium arsenide nanoparticles obtained by laser ablation in liquid acetone.

The presented edition will be useful to a wide range of specialists in materials science both at the theoretical and practical levels.