

PREFACE

We are pleased to present the proceedings of The XXII Conference on Technologies and Properties of Modern Utility Materials (TPMUM 2014) held on May 16, 2014 and hosted by The Faculty of Materials Engineering and Metallurgy of Silesian University of Technology in Katowice, Poland.

The Faculty of Materials Engineering and Metallurgy is one of fourteen Faculties of Silesian University of Technology. The Faculty structure consist of four departments: Institute of Metals Technology, Institute of Materials Science, Department of Production Engineering and Department of Industrial Informatics.

The TPMUM Conference is organised annually in conjunction with the celebration of National Metallurgist's Day in Poland. It is the occasion for faculty members, students and guests to share and discuss the results of their research and plans for the future development of the Faculty. The scope includes topics related to materials engineering, in particular, advanced analytical methods in materials science, development and application of metal alloys, ceramics, composites, their processing techniques and related environmental issues.

Notable event of this year's Conference was the ceremony of granting Honorary Professorship on Silesian University of Technology to Professors Remigiusz Sosnowski (Silesian University of Technology) and Ľudovít Dobrovský (Technical University of Ostrava). Guests and participants of the Conference also attended the unveiling of a memorial plaque dedicated to Professor Adolf Maciejny, prominent expert in the field of materials science, doctor honoris causa in Silesian University of Technology, member of Polish Academy of Sciences and founder of Polish Materials Society.

During the conference more than forty papers were presented on seminar sessions. Additionally the poster session open to participants and faculty students was organised. Selected, peer reviewed papers are presented in this book.

This year's proceedings include 42 papers categorised in four chapters: I. Materials Analysis, II. Processing Technologies, III. Surface Engineering and IV. Materials and Environment. *Chapter I* concerns with studies of materials properties using advanced analytical techniques. *Chapter II* contains papers related to development of materials processing techniques and evaluation of materials properties during processing. *Chapter III* deals with the development of protective coatings for use in various environments. *Chapter IV* includes papers that deal with waste management, environmental impact of materials processing industry and optimization of processing technologies.

The Conference should be considered a success. As an Editors of this proceedings we would like to thank all participants for their attendance and the effort of preparing the papers. Special thanks for reviewers and everyone who was helpful in preparation of this proceedings.

Editors