Preface

The Proceedings CURRENT RESEARCH IN ADVANCED MATERIALS AND PROCESSES includes 92 papers presented at the Sixth Yugoslav Materials Research Society Conference (Yu-MRS Meeting) held in Herceg Novi, Serbia and Montenegro, September 13-17th, 2004. Previous five Conferences were also held in Herceg Novi, when Yugoslav Materials Research Society was formed as non-government, non-profit, scientific association, whose main goals and tasks were the encourage creativity in materials science and engineering to achieve harmonic coordination of this field in our country and to connect it with analogous activities worldwide in order to include us into the global international programs. Materials science and engineering incorporate acquiring of the knowledge on materials synthesis and processing, their composition and structure, properties and behaviour and their functions and potentialities and its application to the devices, machines, units and other final products. Economic prosperity, quality of life and healthy environment are closely connected to improvement of existing and development of the new materials and processing technologies.

Few hundred scientists from our country and the world submitted 195 papers, of which 170 were presented (73 papers orally and 97 as posters). 156 registered participants took part in the work of the Conference. All the submitted papers (104) were reviewed by at least one of the members of the Scientific Committee and the access review team. The papers accepted for publication have been considered to be sufficiently original and to contain new data that deserve to be published in the Proceedings. Authors from 21 countries (USA, Canada, Japan, China, Korea, UK, Germany, France, Russia, Italy, Spain, Belgium, Austria, Slovenia, Poland, Czech Republic, Slovakia, Ukraine and Republic of Srpska), beside Serbia and Montenegro, are included in the Proceedings, proving our international orientation.

Ninety-two papers selected by the Editors for inclusion in this volume are thematically presented in ten sections: I Nanostructures and Thin Films; II Solid State Phenomena; III Nanomaterials; IV Advanced Materials; V Materials for Electrochemistry; VI Spectroscopic Characterization; VII Synthesis and Processing; VIII Powders, Ceramics and Sintering; IX Composites and X Biomaterials.

The Editors wish to thank heartily to all members of the Scientific and Organizing Committees for their efforts to organize the conference successfully, and to perform their duties as Session Chairman and reviewers. We also acknowledge our profound gratitude to foreign and domestic reviewers whose expert comments helped Editors to select the most original and contemporary papers.

Unfailing help and enthusiasm of Ms. Aleksandra Stojičić, secretary of the conference is gratefully acknowledged. The Editors wish to thank Aleksandra for her technical editing of the materials before, during and after the conference and for preparing Table of Contents, Cover and introductory pages, and other details for the Proceedings. The Editors also wish to thank Mrs. Verica Korica-Roglić for English grammar and syntax editing of all articles, as well as Ms. Siniša Marković and Mrs. Dragana Jugović for all the help at final stage of technical editing of the Proceedings.

Our gratitude to the Ministry of Science and Environmental Protection of the Republic of Serbia for their constant financial support in organizing these Conferences and publishing their Proceedings.

Belgrade, December, 2004

Dragan P. Uskoković
Slobodan K. Milonjić
Dejan I. Raković
Welcome Address of Prof. Dragan Uskokovic, President of Yugoslav Materials Research Society and Director of the Institute of Technical Sciences of SASA at the Sixth Conference of Yugoslav Materials Research Society YUCOMAT 2004, Herceg Novi, September 13th, 2004

Honourable ladies and gentlemen, dear colleagues,

I have a great honour and pleasure to greet you in the name of the Yugoslav Materials Research Society and the Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, at the beginning of the Sixth YUCOMAT Conference and to wish that the program in front of you be the source of new information and useful discussions. Although young, our Society notes in its record number of significant realizations that convince us that we are on the good path to grow into a similar Materials Research Societies worldwide, many of whom belong to far more developed countries than ours. Previous five conferences, held in 1995, 1997, 1999, 2001 and 2003, and their Proceedings published by Trans Tech Publications from Switzerland in its prestigious Materials Science Forum Edition, are visible proof of this. Impact factor of this journal was in last few years varying between 0.5 and 1.0 and it is in the middle of the list of journals in this field. For 2003 its impact factor is 0.602.

Programme of this year’s Conference plans holding of two plenary sessions, five daily Symposia dedicated to the new methods of synthesis and processing of materials, new materials for the application in high-technologies, nanostructured materials, composites and biomaterials, as well as two daily workshops on nanomaterials and nanotechnologies. The goal of the Conference is to critically examine the most actual problems in materials science and engineering and to present in the best possible way to domestic and international public the state and our possibilities in this field. Several hundreds of domestic and foreign scientists submitted 195 articles, 82 of which will be oral and the rest 113 will be poster presentations. Authors of 33 articles are from foreign laboratories, 23 articles are the product of mutual research teams that our authors realized through international cooperation, while the rest were done in our country. Authors are from 20 countries all together. We expect the participating scientists from USA, Canada, England, Germany, France, Russia, Italy, Spain, Switzerland, Slovenia, Ukraine, and Republic of Srpska. As previous conferences’ Proceedings, this time also around ninety selected articles will be published by Trans Tech Publications Ltd.

Please allow me, honourable colleagues, to use this opportunity to express few personal opinions concerning the path we already travelled until now and that which expects us further. We succeeded in this segment of scientific activity to unite the greatest part of domestic potential and to slowly annex to it our close international colleagues, and to harmonize this field, with our very limited and humble means, with European and global courses, which the programme of this Conference is the best proof of. For the period of 9 years from the first YUCOMAT ’95 conference, we transformed it from purely domestic to almost international conference. From two-yearly conference in the first 8 years, from the Fifth, last year’s, conference, with a lot of uncertainty but a lot of faith that there is a huge latent potential in our country, we changed into annual conference expecting to stabilise at approximately 200 presentations. Furthermore, we realized in last two years a two-volume Proceedings with around 95 articles, of which 1/3 are international and 2/3 were made in our laboratories. Significant contacts were made on international level, precisely at these conferences, even in times of our greatest isolation, which contributed to the realisation of numerous official and unofficial collaborations that in many cases grown into mutual research projects. We attracted many of our distinguished authors from Diaspora, who firstly alone and then with their co-workers and colleagues accepted this conference as their forum to present their latest research and learn about domestic news. That is
the best way to achieve even greater closeness and mutual integration of our and their programmes. We gave a significant support to young researchers by promoting the best PhD and MSc theses and the best oral and poster presentations. Original practice that related only to domestic young authors, slowly passed onto international, too, so that many young foreign people attend. We wish that they all, after receiving a quality education and experience at prestige worldwide universities and laboratories, return and painlessly incorporate into our area of science and research.

The experience of the countries that lately joined European Union, especially 10 countries that joined the Union this year, is of huge importance for our strategy and tracking of our further path. Funds for science, the number and quality of publications and patents and all other relevant indications have to be our sign-post to achieve adequate scientific and technological development of our country. Funds that are now given for science (0.4% of gross national product, less than 10 Euros per citizen in absolute figures) are about 5-10 times less than in the countries that joined European Union in May of 2004 (Slovenia, Hungary, Czech Republic, etc.) and 20-100 times less than highly developed countries. Increase of the funds for science and their bringing to a realistic level that is similar to developed countries and to the ones we aspire to, is an imperative. This would contribute to achievement of even more significant results and further progress in this area of huge intellectual and technological challenges.

Dear colleagues, I wish you again successful work during this Conference and pleasant stay at this lovely city of flowers, art, beauty and warmth.
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