From the Guest Editor

This issue of the journal *Thermal Science* is once again dedicated to the problems of internal combustion engines. A thermal process inside the engine dictates engine thermal efficiency and environmental level. The complexity of the process is caused by interlacing processes of thermodynamics, fluid mechanics, and chemical kinetics. Therefore theoretical and experimental research in this area is always current, causing that a large number of papers was in competition for the publication in this issue, and the most interesting are published, presenting the results of research in the area of engine exhaust emissions, engine simulation and modeling, and the use of alternative fuels.

Engine exhaust emissions problem is still very important, because stringent regulations require continual research and application of new solutions to reduce pollutants from the engine. Research of NO_x and particulate matter emissions is in the first place, especially having in mind new requirements for measurement of fine particles emission.

The study of optimal working process has always attracted researchers. The complexity of working process makes this problem very difficult. Consideration of theoretical thermodynamic cycle gives the basic assumptions of efficiency and possible optimization of the process. The use of finite time thermodynamics to analyze theoretical cycles is very useful. However, the real working process can be simulated with more complex mathematical apparatus using CFD techniques. Studies of the application of different approaches in multi dimensional modeling of engine process are presented in this issue, as well as different approaches of exhaust manifold modeling (problems of junction, heat transfer, and aftertreatment) and simulation of fuel injection process.

The problems of implementation of alternative fuels in order to replace fossil fuels, reduce emissions and improve energy efficiency always attract the attention of researchers. The possibilities are to use hydrogen or its addition to conventional fuels, to use natural gas and to use ethanol or biodiesel (from different origins), as well as their blends. Also, one possibility to increase overall energy efficiency of transport is the renewal of existing vehicle fleet.

All these problems are treated in this issue. We have chosen 25 papers, and unfortunately a number of papers on this subject will have to remain for the next special issue. Anyway, we will like to take the opportunity to express our great gratitude to all authors, for their successful research work, as well to the reviewers, for their sharing time and knowledge to improve the quality of our journal. Also, many thanks to Prof. Dr. Simeon Oka, Editor-in-chief, who has enabled the publishing of this special issue.

November 21, 2011

Guest editor of this special issue

Prof. Dr. Stojan Petrović
IC Engine Department,
Faculty of Mechanical Engineering,
University of Belgrade, Belgrade, Serbia

Reviewers of papers for Thermal Science No. 4/2011

Prof. Miroljub Adžić, Ph. D., University of Belgrade, Belgrade, Serbia
Prof. Sehmus Altun, Ph. D., Technical Faculty, Batman, Turkey
Luca Andreassi, Ph. D., Universita di Roma Tor Vergata, Rome, Italy
Prof. Bjarne Andresen, Ph. D., University of Copenhagen, Copenhagen, Denmark
Prof. Dennis Assanis, Ph. D., University of Michigan, Ann Arbor, Mich., USA
Branislav Basara, Ph. D., AVL, Graz, Austria
Prof. Gino Bella, Ph. D., Universita di Roma Tor Vergata, Rome, Italy
Prof. Akos Berczky, Ph. D., Budapest University of Technology, Budapest, Hungary
Mustafa Bahattin Celik, Ph. D., Karabuk University, Karabuk, Turkey
Prof. Lingen Chen, Ph. D., Naval University of Engineering, Wuhan, China
Chun Shun Cheung, Ph. D., Polytechnic University, Hong Kong, China
Felice Corcione, Ph. D., National Research Council, Naples, Italy
Zoran Filipi, Ph. D., University of Michigan, Ann Arbor, Mich., USA
Prof. Ivan Filipović, Ph. D., University of Sarajevo, Sarajevo, B&H
Michele Gambino, Ph. D., National Research Council, Naples, Italy
Nicola Del Giacomo, Ph. D., National Research Council, Naples, Italy
Kresimir Gebert, Ph. D., Navistar CO., Chicago, Ill., USA
Radinko Gligorijević, Ph. D., Institute IMR, Belgrade, Serbia
Prof. Michael P. Harold, Ph. D., University of Houston, Houston, USA
Prof. Dimitrios Hountalas, Ph. D., National Technical University, Athens, Greece
Prof. Zuohua Huang, Ph. D., Xi'an Jiaotong University, Xi'an, China
Prof. Lambros Kaiktsis, Ph. D., National Technical University, Athens, Greece
Prof. Breda Kegl, Ph. D., University of Maribor, Maribor, Slovenia
Prof. Ivan Klinar, Ph. D., University of Novi Sad, Novi Sad, Serbia
Samad Jafarmadar, Ph. D., University of Urmia, Urmia, Iran
Zoran Jovanović, Ph. D., Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
Darko Kozarac, Ph. D., University of Zagreb, Zagreb, Croatia
Prof. Gergely Kristof, Ph. D., Budapest University of Technology and Economics, Budapest, Hungary
Prof. Jan Lesinsky, Ph. D., Slovak University of Technology, Bratislava, Slovakia
Prof. Ivan Mahalec, Ph. D., University of Zagreb, Zagreb, Croatia
Prof. Emil Marinov, Ph. D., University of Rousse, Rousse, Bulgaria
Prof. Attila Meggyes, Ph. D., Budapest University of Technology and Economics, Budapest, Hungary
Prof. Pramod S. Mehta, Ph. D., Indian Institute of Technology Madras, Chennai, India
Prof. Momčilo Miljuš, Ph. D., University of Belgrade, Belgrade, Serbia
Prof. Padmanabha Mohanan, Ph. D., National Institute of Technology, Karnataka, India
Prof. Leonidas Ntziachristos, Ph. D., Aristotle University of Thessaloniki, Thessaloniki, Greece
Jose Maria Garcia Oliver, Ph. D., Universitat Politecnica de Valencia, Valencia, Spain
Prof. Constantin Pana, Ph. D., Polytechnic University of Bucharest, Bucharest, Romania
Prof. P. J. Paul, Ph. D., Indian Institute of Science, Bangladore, India
Prof. Raul Payri, Ph. D., Universitat Politecnica de Valencia, Valencia, Spain
Prof. Radivoje Pešić, Ph. D., University of Kragujevac, Kragujevac, Serbia
Prof. Snežana Petković, Ph. D., University of Banja Luka, Banja Luka, Republic of Srpska, B&H
Prof. Stojan Petrović, Ph. D., University of Belgrade, Belgrade, Serbia
Prof. Gheorghe Popescu, Ph. D., University of Bucharest, Bucharest, Romania
Prof. Gaddale Amba Prasad Rao, Ph. D., National Institute of Technology, Warangal, India
Dimitrios Rakopoulos, Ph. D., National Technical University Athens, Athens, Greece
Prof. Konstantinos Rakopoulos, Ph. D., National Technical University of Athens, Athens, Greece
Prof. Victorio Rocco, Ph. D., Universita di Roma Tor Vergata, Rome, Italy
Prof. Luis Miguel Rodriguez, Ph. D., Universidad Politecnica de Madrid, Madrid, Spain
Prof. Zissis Samaras, Ph. D., Aristotle University of Thessaloniki, Thessaloniki, Greece
Khalid M. Saqr, Ph. D., Universiti Teknologi Malaysia, Skudai, Johor, Malaysia
Cenk Sayin, Ph. D., Marmara University, Istanbul, Turkey
Prof. Sergei Sazhin, Ph. D., University of Brighton, Brighton, United Kingdom
Sreedhara Sheshardri, Ph. D., Indian Institute of Technology Bombay, Mumbai, Powai, India
Prof. Dinko Sincic, Ph. D., University of Zagreb, Zagreb, Croatia
Prof. Dragoslava Stojiljković, Ph. D., University of Belgrade, Belgrade, Serbia
Stanislaw Szwaja, Ph. D., Czestochowa University of Technology, Częstochowa, Poland
Prof. Michal Takats, Ph. D., CzechTechnical University, Prague, Czech Republic
Prof. Dinu Taraza, Ph. D., Wayne State University, Detroit, Mich., USA
Prof. Imdat Taymaz, Ph. D., University of Sakarya, Adapazari, Turkey
Prof. Miroljub Tomić, Ph. D., University of Belgrade, Belgrade, Serbia
Laura Tribioli, Ph. D., Universita di Roma Tor Vergata, Rome, Italy
Wojciech Tutak, Ph. D., Czestochowa University of Technology, Częstochowa, Poland
Bianca Maria Vaglieco, Ph. D., National Research Council, Naples, Italy
Gerardo Valentino, Ph. D., National Research Council, Naples, Italy
Radoje Vujadinović, Ph. D., University of Montenegro, Podgorica, Montenegro