



Serbian Tribology Society



Faculty of Mechanical Engineering
University of Kragujevac

SERBIATRIB '11

12th International Conference on Tribology

11 – 13 May 2011, Kragujevac, Serbia

PROCEEDINGS



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ISBN: 978-86-86663-74-0

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- Publisher:** **Serbian Tribology Society**
Sestre Janjić 6, 34000 Kragujevac, Serbia
- Faculty of Mechanical Engineering, University of Kragujevac**
Sestre Janjić 6, 34000 Kragujevac, Serbia
- For the Publisher:** **Branko Ivković**, Ph.D., Serbian Tribology Society
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- Technical editor:** **Slobodan Mitrović**, Ph.D.
Faculty of Mechanical Engineering, University of Kragujevac
- Printed by:** **SKVER**,
34000 Kragujevac, Serbia
- Circulation:** 100 copies

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The publication of these Proceedings was financially supported by the Ministry of Science and Technological Development of the Republic of Serbia.

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Preface

The International Conference on Tribology – SERBIATRIB, is traditionally organized by the Serbian Tribology Society every two years, since 1989. The previous conferences were held in Kragujevac (1989, 1991, 1993, 1999, 2005 and 2007), Herceg Novi (1995), Kopaonik (1997) and Belgrade (2001, 2003 and 2009). This year the 12th International Conference on Tribology – SERBIATRIB '11 takes place on 11-13 May 2011 in Kragujevac.

This Conference is organized by the Serbian Tribology Society (STS) and the University of Kragujevac, Faculty of Mechanical Engineering. Organizing Scientific Conferences, STS plays a significant role in helping engineers and researchers to introduce in the fundamentals of tribology and to present their experience, solutions and research results.

The scope of the 12th International Conference on Tribology – SERBIATRIB '11 embraces the state of art and future trends in tribology research and application. The following two aspects of tribology practice require special attention. Firstly, the requirement for higher productivity of machinery means that machines must operate under higher loads and at higher speeds and temperatures, and that is why finding the right solutions for tribological processes is extremely important. Secondly, the good tribology knowledge can greatly contribute to the saving of material and energy.

The Conference program generally includes the following topics: fundamentals of friction and wear; tribological properties of solid materials; surface engineering and coating tribology; lubricants and lubrication; tribotesting and tribosystem monitoring; tribology in machine elements; tribology in manufacturing processes; tribology in transportation engineering; design and calculation of tribocontacts; sealing tribology; biotribology; nano and microtribology and other topics related to tribology.

All together 73 papers of authors from 18 countries (USA, Taiwan, Russia, Belarus, Ukraine, UK, Germany, Switzerland, India, Slovenia, Croatia, Bosnia & Herzegovina, Montenegro, Romania, Bulgaria, Greece, Turkey and Serbia) are published in the Proceedings. Approximately 32 papers were submitted by the foreign authors and app. 41 papers by the Serbian authors. All papers are classified into five chapters:

- Plenary lectures (4)
- Tribological properties of materials and coatings (29)
- Tribology in machine elements (14)
- Tribometry (20)
- Trenje, habanje i podmazivanje (5) – papers written in Serbian language

It was a great pleasure for us to organize this Conference and we hope that the Conference, bringing together specialists, research scientists and industrial technologists, and Proceedings will stimulate new ideas and concepts, promoting further advances in the field of tribology. The

Editors would like to thank the Scientific and the Organizing Committee and all those who have helped in making the Conference better. We would like to thank especially prof. Miroslav Babić and prof. Branko Ivković for the helpful suggestions and support.

The Conference is financially supported by the Ministry of Science and Technological Development of the Republic of Serbia, Center for Tribology Inc (CETR), CSM Instruments and Technology Transfer Center Hanover.

We wish to all participants a pleasant stay in Kragujevac and we are looking forward to seeing you all together at the 13th International Conference on Tribology – SERBIATRIB '13.

Kragujevac, May 2011

Editors