

Preface

The 5th International Conference on Advanced Manufacturing Engineering and Technologies (NEWTECH) will be at University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia, from 5 to 9 June 2017. It is organized by the University of Belgrade, Faculty of Mechanical Engineering. Over 100 delegates will be attending NEWTECH 2017—academics, practitioners and scientists from 12 countries—presenting and authoring 36 papers. The Conference Programme includes 11 keynote speeches (opening/closing sessions), breakout sessions and workshop discussions and a closing session on the final day.

The previous conferences on Advanced Manufacturing Engineering and Technologies (NEWTECH) were as follows:

- 1st Conference—2009 at Dunarea de Jos University of Galati, Galati, Romania. Conference Founder and Chair was Prof. Viorel Paunoiu.
- 2nd Conference—2011 at Brno University, Brno, Czech Republic. Conference Chair was Prof. Miroslav Piska.
- 3rd Conference—2013 at KTH Royal Institute of Technology, Stockholm, Sweden. Conference Chair was Prof. Cornel Mihai Nicolescu.
- 4th Conference—2015 at Wroclaw University of Technology, Poland. Conference Chair was Prof. Jerzy Jedrzejewski.

The main goal of the conference is to bring together experts from academia and industry, and it represents an excellent occasion for exchange of knowledge, ideas, experiences, research results and information in the field of manufacturing.

We acknowledge the outstanding contributions of the following keynote and opening/closing sessions' speakers at NEWTECH 2017.

Plenary Session 1: Recent Trends in Manufacturing:

- Steven Y. Liang, “Process and Microstructure in Materials-Affected Manufacturing”;
- Viorel Paunoiu, Doina Boazu, “Hydro-Multipoint Forming, a challenge in sheet metal forming”;

- Miroslav Piska, Petra Ohnistova, “On the Advanced Milling Technology of Thin-Walled Parts for Aerospace Industry”;
- Károly Szípká, Theodoros Laspas, Andreas Archenti, “Mechanistic Approach for the Quasi-Static Capability Evaluation of Machine Tools”;
- Katarina Monkova, Peter Monka, Dušan Mandulák, Miroslav Džupon, “Some Aspects Influencing Production of Porous Structures with Complex Shapes of Cells”;
- Wit Grzesik, Krzysztof Żak, “High-Precision Machining of Hard Steel Parts Using Special Abrasive Operations”.

Plenary Session 2: A Roadmap to Industry 4.0:

- Detlef Kochan, Ronald Miksche, “Advanced Manufacturing and INDUSTRIE 4.0 for SME”;
- Zivana Jakovljevic, Vidosav Majstorovic, Slavenko Stojadinovic, Srdjan Zivkovic, Nemanja Gligorijevic, Miroslav Pajic, “Cyber-Physical Manufacturing Systems (CPMS)”;
- Slavenko Stojadinovic, Vidosav Majstorovic, Numan Durakbasa, “An Advanced CAI Model for Inspection Planning On CMM”;
- Djordje Cica, Branislav Sredanovic, Stevo Borojevic, Davorin Kramar, “An Integration of Bio-Inspired Algorithms and Fuzzy Logic For Tool Wear Estimation In Hard Turning”;
- N.A. Fountas, Srđan Živković, R. Benhadj-Djilali, C.I. Stergiou, Vidosav Majstorovic, N.M. Vaxevanidis, “Intelligent CNC Tool-Path Generation Methodology for Sculptured Surfaces by Using a Cyber-Physical Metrology Inspection System”.

The conference has the following special, workshop and ordinary sessions:

- Product Design;
- Machining Optimization;
- Product Lifecycle Management;
- Production Planning and Control;
- Cyber-Physical Manufacturing Systems;
- Machine Tools and In-Machine Measurements;
- FabLabs in Science and Education.

NEWTECH 2017 can be regarded as very successful due to its special features:

- (i) it presents new research directions in the field of advanced manufacturing (bio-inspired manufacturing, Cyber-Physical Manufacturing, Industry 4.0), and
- (ii) offers practical applications and solutions for various problems in manufacturing.

We express our gratitude to all people involved in conference planning, preparation and realization, and especially to:

- Founder and Honorary Conference Chairs (Prof. Viorel Paunoiu, Prof. Miroslav Piska, Prof. Cornel Mihai Nicolescu and Prof. Jerzy Jedrzejewski).

- All authors, and especially keynote speakers who have contributed to the high scientific and professional level of the conference.
- All members of the International Programme Committee for reviewing the papers and chairing the Conference Sessions.
- Springer and Mr. Pierpaolo Riva for publishing the conference proceedings within the series “Lecture Notes in Mechanical Engineering”.
- Ministry of Education, Science and Technological Development of the Republic of Serbia for supporting the conference.

We wish to express a special gratitude to M.Sc. students at the University of Belgrade, Faculty of Mechanical Engineering, Ms. Julija Kostić and Ms. Dragana Jevdović for their effort in preparing and managing the conference in the best way.

The host of the next 6th Conference on Advanced Manufacturing Engineering and Technologies—NEWTECH 2019 will be the Laboratory of Manufacturing Processes and Machine Tools (LMProMaT), School of Pedagogical and Technological Education (ASPETE), Athens, Greece. The Conference Chair will be Prof. Nikolaos M. Vaxevanidis.

Belgrade, Serbia
March 2017

Vidosav Majstorovic
Zivana Jakovljevic

Proceedings of 5th International Conference on
Advanced Manufacturing Engineering and Technologies
NEWTECH 2017

Majstorovic, V.D.; Jakovljevic, Z. (Eds.)

2017, XII, 475 p. 286 illus., Softcover

ISBN: 978-3-319-56429-6