

# Preface

The 6th International Congress on Technical Diagnostics (ICTD) was organized together with the 5th edition of the international conference on Condition Monitoring of Machinery in Non-Stationary Operations (CMMNO) in September, 2016 in Gliwice, Poland at Silesian University of Technology (SUT). The organizers were Faculty of Mechanical Engineering at SUT and Polish Society of Technical Diagnostics. Both these conferences and especially gathering scientists and industrial partners in one place gave a chance to establish new directions of development of technical diagnostics methods and applications.

The objectives of the congress were to define and discuss theoretical and also real diagnostic problems occurring in the industry. The keynote speakers were outstanding experts in field of diagnostics, both with academic and industrial background, namely:

- Prof. Fulei Chu, Department of Mechanical Engineering, Tsinghua University, Beijing, China
- Prof. Giorgio Dalpiaz, Department of Engineering, University of Ferrara, Italy
- Prof. Spiliotis D. Fassois Stochastic Mechanical Systems & Automation (SMSA) Laboratory, Department of Mechanical and Aeronautical Engineering, University of Patras, Greece
- Dr. James Ottewill, ABB Corporate Research Center, Cracow, Poland
- Dr. Ibrahim A Sever, Rolls-Royce, UK

The conferences (ICTD and CMMNO were summarized in two separate volumes in Applied Condition Monitoring Series) consisted of 19 sessions devoted to the most important areas of modern technical diagnostics based both on theoretical approaches and industrial solutions to numerous problems.

All the chapters included in this book were reviewed by at least of two referees. We would like to express our gratitude to all reviewers. Based on their opinions, 46 papers have been selected to be published as ICTD proceedings volume in Applied Condition Monitoring series.

The papers in most cases describe current state of the art of the research on diagnostic approaches applied to mechanical engineering, including machinery

maintenance, and especially observation of machinery in non-stationary operations (CMMNO), diagnostics of processes, materials and structures, civil engineering, electronics, mining, production engineering, and automotive engineering. The presented novel diagnostic approaches are often combinations of known methods and new applications to data or knowledge processing and analyzing.

It is also important that some papers included in the proceedings deal with development of new tools applied to assess and diagnose technical objects such as big open spaces or a mining environment. Examples of such tools are autonomous robots equipped with vision and thermo-vision systems. These applications are related to development of different methods of image processing such as image fusion, analysis of stereoscopic images, or virtual and augmented reality.

By tradition the ICTD is organized by a Polish technical university and Polish Society of Technical Diagnostics. The 7th ICTD will be organized in 2020. The place of the congress will be announced at the end of the 2017. We kindly invite researchers and industrial partners to take part in this event.

At the end, we would like to acknowledge to all authors, presenters, and participants of 6th ICTD, thanks to all of them this congress brings original contribution to engineering community.

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