

## Preface

Understanding modern production organization becomes a key element that accounts for the structure and operation of the production system. In fact, this type of production organization should be analyzed against a much wider background: as it develops, industrial economy becomes increasingly complex, with two-fold specialization tackling, namely: multiplication of sequences in the process of turning raw materials in finite products; development of service functions that precede, accompany or extend the actual manufacturing process, with a view to improving the effectiveness of the factors involved.

Modern technologies must be seen as tools used to help develop industrial areas of activity which implicitly means improving life. Firstly, Modern technologies should be considered from the viewpoint of their impact on engineering and the advantages or disadvantages brought to society. Secondly, Modern technologies should be analyzed through their contribution to products quality increase.

Under the Scientific Patronage of the Faculty of Mechanical Engineering of the Silesian University of Technology, Gliwice, Poland, the ModTech2014 International Conference brought together representatives of technology and materials manufacturers, various universities, professional associations and research institutes, that exchanged the latest knowledge on the conference topics.

The second edition of ModTech International Conference was held in Gliwice, Poland, between July 13-16, with the Professional Association in Modern Manufacturing Technologies, ModTech, as main organizer, and the Silesian University of Technology, Gliwice-Poland, the Maritime University of Constanta-Romania, the Technical University of Chisinau-Republic of Moldova and the Donetsk National Technical University, Donetsk-Ukraine as co-organizers.

The authors and coauthors were from various countries worldwide, namely: Japan, South Korea, Romania, Poland, Italy, Iraq, India, Serbia, Portugal, Russia, Spain, Republic of Moldova, Uzbekistan, Ukraine, Turkey, Czech Republic and Mexico.

The main publications of ModTech2014 International Conference are as follow: International Journal of Materials & Product Technology (Special issue - Modern Technologies as Future Solutions for Performance Products), Indian Journal of Engineering & Materials Sciences (Special issue - Composite Materials: Science & Engineering.), International Journal of Modern Manufacturing Technologies and Advanced Materials Research-AMR by Trans Tech Publications Inc. (TTP).

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President of ModTech Professional Association

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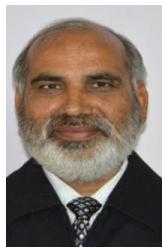
## Prof. Makio Naito

Osaka University, Joining and Welding Research Institute, Osaka, Japan  
SMART SYNTHESIS OF NANOCOMPOSITE PARTICLES  
BY MECHANICAL PROCESSING AND ITS APPLICATIONS



## Prof. Anna Timofiejczuk

Silesian University of Technology, Gliwice, Poland  
CONTEXTUAL APPROACH TO TECHNICAL DIAGNOSTICS



## Dr. Radhey Shyam Beniwal

CSIR-NISCAIR, New Delhi, India  
MATERIALS SCIENCE RESEARCH: A MULTI-DISCIPLINARY  
APPROACH



## Prof. Leandru Bujoreanu

"Gheorghe Asachi" Technical University of Iasi, Romania  
THERMOMECHANICAL TRAINING EFFECTS OF  
MULTIFUNCTIONAL MODULES, PROCESSED BY HIGH-SPEED  
HIGH PRESSURE TORSION, WHEN SUBJECTED TO COMPRESSION  
LOADING-UNLOADING CYCLES



## Dr. Jae-Ho Jeon

Institute of Materials Science, South Korea  
MECHANOCHEMICAL SYNTHESIS AND MECHANOCHEMICAL  
ACTIVATION-ASSISTED SYNTHESIS OF ALKALINE NIOBATE-  
BASED LEAD-FREE PIEZOCERAMIC POWDERS



## Prof. Jose Manuel Torralba

University Carlos III, Madrid, Spain  
DESIGN AND DEVELOPMENT OF MASTER ALLOYS FOR LIQUID  
PHASE SINTERING



## Prof. Hidehiro Kamiya

TAT, Tokyo, Japan  
NANOPARTICLES AND CARBON NANOMATERIAL COATING ON  
FINE PARTICLES PREPARED THROUGH COLLOIDAL AND CVD  
COMBINED PROCESS □

**Prof. Andrzej Buchacz**

Silesian University of Technology, Gliwice, Poland

CLASSICAL AND UNCLASSICAL METHODS IN MODELING, ANALYSIS AND SYNTHESIS OF DISCRETE AND CONTINUOUS SYSTEMS AS AN INTRODUCTION TO SYNTHESIS OF TRANSVERSE VIBRATING MECHANICAL AND MECHATRONIC COMPLEX SYSTEMS

**Prof. Hong Seok Park**

University of Ulsan, South Korea

ENERGY EFFICIENCY PROCESS FOR MANUFACTURING CRANK SHAFT

**Prof. Loredana Santo**

Tor Vergata University of Rome, Italy

SELF-DEPLOYABLE COMPOSITE STRUCTURES

**Prof. Salam Bash Al-Maliky**

Al-Mustansirya University, Baghdad, Iraq

EFFECT OF SUCTION PIPE DIAMETER AND SUBMERGENCE RATIO ON AIR LIFT PUMPING RATE

**Prof. Manuel Alberto M. Ferreira**

ISCTE-IUL, Lisboa, Portugal

PERFORMANCE AND DIFFERENTIAL COSTS ANALYSIS IN A TWO ECHELONS REPAIR SYSTEM WITH INFINITE SERVERS QUEUES

**Prof. Pavel Topala**

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NANO-OXIDE FILMS FORMED ON METAL SURFACES BY APPLYING EDI

**Dr. Ildiko Peter**

Politehnica University of Torino, Italy

METALLIC ALLOYS FOR MEDICAL APPLICATIONS

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