

Foreword

As engineers and / or scientists, but also as inhabitants of planet Earth, we could remark an increasing attention given manufacturing technologies, due to their important role in ensuring continuous development of human society.

Thus, it was natural that the researchers direct their efforts toward investigating and improving manufacturing technologies. It was also normal that researchers want to exchange information among them, be up to date with what's new in the field of manufacturing technologies. The conference tries to adequately answer to such goals.

Nowadays, the conference is jointly organized by the similar departments from the universities from Iași, Brașov, Cluj, Pitești, Galați, București (România), Chișinău (Republic of Moldova), and by Departments of Machine Manufacturing Technology /Manufacturing Engineering and the Precision Micro-Machining Center from the University of Toledo (U.S.A.). The conference objective is suggested inclusively by the general title of the scientific event: Innovative Manufacturing Engineering (IManE).

The conference organizers wanted to continue the tradition started nearly 15 years ago, when the head of department of Iasi, Professor Octavian Pruteanu, organized the first conference, called "Modern Technologies in Machine Manufacturing" (whose abbreviation in the Romanian language is TMCM). Since 1999, conferences have been held annually, successively, in Romania and in Republic of Moldova, so that, at present, we can talk about a real tradition of conferences organized by researchers from universities located on both banks of the Prut River. Between 1999 and 2008, the conference changed his title in "Modern technologies, quality, restructuring" (TMCR) and, from 2009 to 2012, the conference had the title „Modern Technologies, Quality and Innovation” (ModTech). From 2013, the name of the conference was changed in „Innovative Manufacturing Engineering” (IManE).

IManE 2015 conference was planned to take place in Iasi, in circumstances when the Department of Machine Manufacturing Technology of Iasi celebrates fulfillment in 2014 of the 50th anniversary of its foundation (foundation in 1964).The conference organizers have received a large number of abstracts (more than 330) for papers proposed to be communicated and published in the conference. After reviewing process, more than 250 papers were accepted and they will be presented and published in the conference proceedings.

We hope that, similarly to the previous conferences, the conference will be a useful and enjoyable opportunity for participants and it will provide new opportunities for developing a useful exchange of technical and scientific opinions among participants.

Professor Laurențiu Slătineanu
Department of Machine Manufacturing Technology
Faculty of Machine Manufacturing and Industrial Management
“Gheorghe Asachi” Technical University of Iași, România

Committees

Honorary President

Prof. **Laurențiu SLĂTINEANU**, PhD, „Gheorghe Asachi” Technical University of Iași, România

Honorary Committee

Prof. **Ioan BONDREA**, PhD, U Lucian Blaga of Sibiu, România

Prof. **Ion BOSTAN**, PhD, „Moldova” Technical University of Chișinău, Republic of Moldova

Prof. **Constantin BUNGĂU**, PhD, U of Oradea, România

Prof. **Cristian DOICIN**, PhD, U Politehnica of București, România

Prof. **Cătălin FETECĂU**, PhD, U Dunărea de Jos of Galați, România

Prof. **Gheorghe NAGÎȚ**, PhD, „Gheorghe Asachi” Technical University of Iași, România

Conference Chairs

Prof. **Niculae BÂLC**, PhD, Technical University of Cluj Napoca, România

Prof. **Gheorghe OANCEA**, PhD, Transilvania University of Brașov, România

Assoc. Prof. **Eduard NIȚU**, PhD, University of Pitești, România

Prof. **Nicolae IONESCU**, PhD, U Politehnica of București, România

Prof. **Viorel PĂUNOIU**, PhD, U Dunărea de Jos of Galați, România

Assoc. Prof. **Sergiu MAZURU**, PhD, „Moldova” Technical University of Chișinău, Republic of Moldova

Prof. **Oana DODUN DES PERRIERES**, PhD, „Gheorghe Asachi” Technical University of Iași, România

Professional Association

Romanian Association for Nonconventional Technologies

AUIF - Academic Association of Manufacturing Engineering

ASTCM - Association of Manufacturing Engineering Students and Alumni

Keynote speakers

Prof. **Loredana SANTO**,

University of Rome “Tor Vergata”, ITALY

Self-repairing Behavior of Shape Memory Composites

Prof. **Grzegorz KRÓLCZYK**,

Opole University, POLAND

Surface Morphology in Production Processes in Context of Metal Forming

Prof. **Ioan MARINESCU**,

University of Toledo, USA

Research & Development, the Key for Success in Academia

Dr. **Adrian HOMUTESCU**,

Continental Automotive ROMÂNIA

Regenerative Drum Brake Concept

Prof. **Birgit Kjærside STORM**,

Embla/Aalborg University, DENMARK

From Fishing Net to Granules and Recycled Steel - An Eco innovation project

Prof. **Marius SPIROIU**, **Bogdan ABAZA** and **Marian GHEORGHE**,

Politehnica University of Bucharest, ROMÂNIA

Achievements of the Partnership between Politehnica University of Bucharest and Renault Technologie Roumanie

Prof. **Apostolos KORLOS**,

Alexander Technological Educational Institute of Thessaloniki, Central Macedonia, GREECE

Research Activities in the Laboratory of Machine Tools and Manufacturing

Scientific Committee

Bogdan **ABAZA**, U Politehnica of București, România
Marioara **ABRUDEANU**, U of Pitești, România
Dumitru **AMARANDEI**, U Stefan cel Mare of Suceava, România
Eugen **AXINTE**, Gheorghe Asachi TU of Iași, România
Nicolae **BĂLC**, TU of Cluj-Napoca, România
Mihai **BĂNICĂ**, TU of Cluj-Napoca, NU Center of Baia Mare
Doru **BARDAC**, U Politehnica of București, România
Dorel **BANABIC**, TU of Cluj-Napoca, România
Felicia **BANCIU**, U Politehnica of Timișoara, România
Liliana **BEJAN**, TU Gheorghe Asachi of Iași, România
Petru **BERCE**, TU of Cluj-Napoca, România
Katarzyna **BIALAS**, Silesian TU, Poland
Florin **BLAGA**, U of Oradea, România
Octavian **BOLOGA**, U Lucian Blaga of Sibiu, România
Ioan **BONDREA**, U Lucian Blaga of Sibiu, România
Gheorghe **BRABIE**, U Vasile Alecsandri of Bacau, România
Paul Dan **BRÎNDASU**, U Lucian Blaga of Sibiu, România
Andrzej **BUCHACZ**, Silesian TU of Gliwice, Poland
Traian **BUIDOS**, U of Oradea, România
Carmen **BUJOREANU**, Gheorghe Asachi TU of Iași, România
Leandru **BUJOREANU**, Gheorghe Asachi TU of Iași, România
Constantin **BUNGĂU**, U of Oradea, România
Lucian Ionel **CIOCA**, U Lucian Blaga of Sibiu, România
Francisco **CHINESTA**, Ecole Centrale de Nantes, France
Juan Pablo **CONTRERAS SAMPER**, U of Cadiz, Spain
George **CONSTANTIN**, U Politehnica of București, România
Irina **COZMANCA**, Gheorghe Asachi TU of Iași, România
Joao Paulo **DAVIM**, University of Aveiro, Portugal
Florin **DIMOFTE**, U of Toledo, USA
Calin **DENEȘ**, U Lucian Blaga of Sibiu, România
Petru **DUȘA**, Gheorghe Asachi TU of Iași, România
Cristian **DOICIN**, U Politehnica of București, România
George **DRAGHICI**, U Politehnica of Timișoara, România
Valeriu **DULGHERU**, TU of Moldova, Chisinau, Moldavia
Nicoleta **ENE**, U of Toledo, USA
Alexandru **EPUREANU**, U Dunarea de Jos of Galați, România
Dumitru **IACOB**, U Ștefan cel Mare of Suceava, România
Radu **IBANESCU**, Gheorghe Asachi TU of Iași, România
Nicolae **IONESCU**, U Politehnica of București, România
Romeo **IONESCU**, U Stefan cel Mare of Suceava, România
Nicolae-Valentin **IVAN**, Transilvania of Brasov, România
Catalin **FETECAU**, U Dunarea de Jos U of Galați, România
Marian **GHEORGHE**, U Politehnica of București, România
Daniel **GHICULESCU**, U Politehnica of București, România
António **GONÇALVES-COELHO**, U Nova de Lisboa, Portugal
Richard **HERMAN**, U Politehnica of Timișoara, România
Mihaiță **HORODINCA**, TU Gheorghe Asachi of Iași, România
Panagiotis **KYRATISIS**, TEI of Western Macedonia, Greece
Ionut **LAMBRESCU**, Petroleum-Gas U of Ploiești, România
Stanislaw **LEGUTKO**, Poznan U of Technology, Poland
Octavian **LUPESCU**, Gheorghe Asachi TU of Iași, România
Nouras **LUPULESCU**, Transilvania U of Brașov, România
Liliana **LUCA**, U Constantin Brâncuși of Tg.Jiu, România
Dorin **LUCA**, Gheorghe Asachi TU of Iași, România
Mircea **LOBONTIU**, TU of Cluj-Napoca, NU Center of Baia Mare
Catalina **MAIER**, U Dunarea de Jos of Galați, România
Ioan **MARINESCU**, U of Toledo, USA

Nicolae **MARINESCU**, U Politehnica of București, România
Sergiu **MAZURU**, TU of Moldova, Chisinau, Moldavia
Eugen **MERTICARU**, Gheorghe Asachi TU of Iași, România
Vasile **MERTICARU**, Gheorghe Asachi TU of Iași, România
Mircea **MIHAILIDE**, Gheorghe Asachi TU of Iași, România
Alina **MINEA**, Gheorghe Asachi TU of Iași, România
Sevasti **MITSI**, Aristotle U of Thessaloniki, Greece
Alexander **MIKHAYLOV**, NTU Donetsk, Ukraine
Gavril **MUSCA**, Gheorghe Asachi TU of Iași, România
António **MOURÃO**, U Nova de Lisboa, Portugal
Nagi **NAGANATHAN**, U of Toledo, USA
Gheorghe **NAGIT**, Gheorghe Asachi TU of Iași, România
Laurentiu Eduard **NITU**, U of Pitești, România
Irina **NEAGA**, U of Plymouth, UK
Anna **NOCIVIN**, U Ovidius of Constanța, România
Gheorghe **OANCEA**, Transilvania U of Brașov, România
Nicolae **OANCEA**, U Dunarea de Jos of Galați, România
Gheorghe **OBACIU**, Transilvania U of Brașov, România
Dumitru **OLARU**, Gheorghe Asachi TU of Iasi, România
Constantin **OPRAN**, U Politehnica of București, România
Răzvan **PĂCURAR**, TU of Cluj-Napoca, România
Liviu Iulian **PALADE**, U of Lyon, France
Viorel **PALEU**, Gheorghe Asachi TU of Iasi, România
Ion **PANA**, Petroleum-Gas U of Ploiești, România
Carmen Ema **PANAITE**, Gheorghe Asachi TU of Iasi, România
Viorel **PAUNOIU**, U Dunarea de Jos of Galați, România
Marcel Sabin **POPA**, TU of Cluj-Napoca, România
Octavian **PRUTEANU**, Gheorghe Asachi TU of Iasi, România
Fabrizio **QUADRINI**, U Tor Vergata of Rome, Italy
Miroslav **RADOVANOVIC**, U of Nis, Serbia,
Minodora **RIPA**, U Dunarea de Jos U of Galați, România
Ion **RUSICA**, TU of Moldova, Chisinau, Republic of Moldova
Bogdan **RUSU**, Gheorghe Asachi TU of Iasi, România
Loredana **SANTO**, U Tor Vergata of Rome, Italy
Francisco **SANTOS**, U of Valladolid, Spain
Carol **SCHNAKOVSKY**, U Vasile Alecsandri of Bacau, România
Nicolae **SEGHEdin**, Gheorghe Asachi TU of Iași, România
Felicia **STAN**, U Dunarea de Jos of Galați, România
Cristina **SILIGARDI**, U of Modena, Italy
Laurențiu **SLATINEANU**, Gheorghe Asachi TU of Iași, România
Birgit Kjærside **STORM**, U of Aalborg, Esbjerg, Denmark
Dumitru **SOAITA**, U Petru Maior, Tg. Mureș, România
Gabriela **STRNAD**, U Petru Maior, Tg. Mureș, România
Mirela **SUCHEA**, U Alexandru Ioan Cuza, Iași, România
Roberto **TETI**, U Federico II of Naples, Italy
Irina **TIȚA**, Gheorghe Asachi TU of Iași, România
Mihail Aurel **ȚÎȚU**, U Lucian Blaga of Sibiu, România
Alexei **TOCA**, TU of Moldova, Chisinau, Republic of Moldova
Pavel **TOPALA**, Alecu Russo Bălți State U, Republic of Moldova
Pavlina **TOTEVA**, Technical University of Varna, Bulgaria
Ioannis **TSIAFIS**, Aristotle U of Thessaloniki, Greece
Gyula **VARGA**, University of Miskolc, Hungary
Aurelian **VLASE**, U Politehnica of București, România
Danut **ZAHARIA**, Gheorghe Asachi TU of Iași, România
Valentin **ZICHIL**, U Vasile Alecsandri of Bacau, România

Reviewers for the IManE2015 Conference

Bogdan **ABAZA**; Marioara **ABRUDEANU**; Dumitru **AMARANDEI**; Daniel Constantin **ANGHEL**; Eugen **AXINTE**; Felicia **BANCIU**; Paul Doru **BARSANESCU**; Mihai **BĂNICĂ**; Liliana **BEJAN**; Nadia **BELU**; Petru **BERCE**; Irina **BESLIU**; Katarzyna **BIALAS**; Florin **BLAGA**; Ovidiu **BLĂJINĂ**; Mihai **BOCA**; Octavian **BOLOGA**; Gheorghe **BRABIE**; Paul Dan **BRÎNDAȘU**; Andrzej **BUCHACZ**; Traian **BUIDOS**; Carmen **BUJOREANU**; Leandru Gheorghe **BUJOREANU**; Eugen **CARATA**; Constantin **CARAUSU**; Francisco **CHINESTA**; Nicanor **CIMPOEȘU**; Florentin **CIOATA**; Bogdan **CIOBANU**; Ionel **CIOCA**; Ion **CIUPITU**; Viorel **COHAL**; George **CONSTANTIN**; Margareta **COTEATA**; Gheorghe **CREȚU**; Calin **DENEȘ**; Florin **DIMOFTE**; Oana **DODUN**; Cristian **DOICIN**; Ioan **DOROFTEI**; George **DRAGHICI**; Chitariu **DRAGOS**; Mircea Viorel **DRĂGOI**; Valeriu **DULGHERU**; Petru **DUȘA**; Nicoleta **ENE**; Alexandru **EPUREANU**; Catalin **FETECAU**; Alexandru Catalin; Alexandru Cătălin **FILIP**; Dan Laurentiu **GHENGHEA**; Marian **GHEORGHE**; Lorelei **GHERMAN**; Daniel **GHICULESCU**; António **GONÇALVES-COELHO**; Traian **GRĂMESCU**; Richard **HERMAN**; Mihaita **HORODINCA**; Doina

IACOMI; Radu **IBĂNESCU**; Adrian **IOANA**; Nicolae **IONESCU**; Romeo **IONESCU**; Monica **IORDACHE**; Nicolae-Valentin **IVAN**; Apostolos **KORLOS**; Grzegorz **KRÓLCZYK**; Jolanta **KRÓLCZYK**; Panagiotis **KYRATSIS**; Ionuț **LAMBRESCU**; Stanisław **LEGUTKO**; Mircea **LOBONTIU**; Dorin **LUCA**; Octavian **LUPESCU**; Nouras **LUPULESCU**; Catalina **MAIER**; Ioan **MARINESCU**; Nicolae **MARINESCU**; Eugen **MERTICARU**; Vasile **MERTICARU**; Andrei Marius **MIHALACHE**; Alina Adriana **MINEA**; Agnieszka **MISZTAL**; Sevasti **MITSI**; António **MOURÃO**; Adriana **MUNTEANU**; Gheorghe **NAGÎȚ**; Irina **NEAGA**; Florin **NEGOESCU**; Laurențiu Eduard **NIȚU**; Anna **NOCIVIN**; Gheorghe **OANCEA**; Nicolae **OANCEA**; Dumitru **OLARU**; Constantin Gheorghe **OPRAN**; Razvan **PACURAR**; Liviu Iulian **PALADE**; Viorel **PALEU**; Carmen Ema **PANAITE**; Ion **PANĂ**; Viorel **PAUNOIU**; Cristian **PISARCIUC**; Adriana Gabriela **PLAIASU**; Marcel Sabin **POPA**; Daniela **POPESCU**; Octavian **PRUTEANU**; Fabrizio **QUADRINI**; Miroslav **RADOVANOVIC**; Minodora **RIPA**; Marius Ionuț **RÎPANU**; Alin **RIZEA**; Iulian **ROMANESCU**; Bogdan **RUSU**; Loredana **SANTO**; Francisco Javier **SANTOS**; Tom **SAVU**; Carol **SCHNAKOVSKY**; Elena **SCUTELNICU**; Neculai Eugen **SEGHEDIN**; Cristina **SILIGARDI**; Gheorghe **SINDILĂ**; Laurențiu **SLĂTINEANU**; Dumitru **SOAITA**; Marius Adrian **SPIROIU**; Felicia **STAN**; Gabriela **STRNAD**; Mirela **SUCHEA**; Lucian **TABACARU**; Virgil Gabriel **TEODOR**; Irina **TIȚA**; Alexei **TOCA**; Pavel **TOPALA**; Mihail Aurel **ȚÎȚU**; Gyula **VARGA**; Danut **ZAHARIEA**; Valentin **ZICHIL**

Organizing Committee from TU of Iași

Eugen **AXINTE**; Oana **DODUN**; Petru **DUȘA**; Octavian **LUPESCU**; Gavril **MUSCĂ**; Gheorghe **NAGIT**; Laurențiu **SLĂTINEANU**; Lucian **TĂBĂCARU**; Constantin **CĂRAUȘU**; Laurențiu **GHENGHEA**; Viorel **COHAL**; Gheorghe **CREȚU**; Vasile **MERTICARU**; Florin **NEGOESCU**; Margareta **COTEATĂ**; Andrei **MIHALACHE**; Mihai **BOCA**; Marius **RÎPANU**

Acknowledgements

The organizers of IManE 2015 Conference wish to thank the following companies and organizations for their sponsorship and support.

Asociația Studenților și Absolvenților TCM Iași



Delphi Diesel Systems România S.R.L.

DELPHI

Continental Automotive România S.R.L.

