

CONFERENCE PROGRAM

September 17th 2010 | Subject to change

WEDNESDAY, SEPTEMBER 22nd 2010

8:00 9:00 **Registration**

Opening Ceremony

Igor Drstvenšek (Conference chairman, University of Maribor, Faculty of Mechanical Engineering, Slovenia)

9:00 9:40 **Aleš Mihelič** (General director, Directorate for Technology, Ministry of Higher Education, Science and Technology, Slovenia)

Niko Samec (Dean, University of Maribor, Faculty of Mechanical Engineering, Slovenia)

Mirko Brulc (Mayor of Nova Gorica, Slovenia)

Additive Manufacturing in Practical Use and Education Moderator: Igor Drstvenšek

9:40 10:20 **Terry Wohlers** (Wohlers Associates, USA)
The Future of Additive Manufacturing

10:20 11:00 **Paul Bates** (Reebok, USA)
CAD, Rapid Prototyping and Footwear, what the hell were we thinking?

11:00 11:40 **Ken Patton & Ed Tackett** (RapidTech, the National Center for Rapid Technologies, USA)
Project Based Learning for Additive Manufacturing Processes

11:40 12:00 **Break**

Design and Development in Additive Manufacturing Moderator: Richard Hague

12:00 12:40 **Ian Campbell** (Loughborough University, GB)
Development of Repository to Support Design for Additive Manufacturing

12:40 13:20 **Ian Gibson** (National University of Singapore, Singapore)
RapidPRE: A new Additive Manufacturing Technique based on Reaction Injection Moulding

13:20 14:30 **Lunch**

Applicability of Additive Manufacturing Moderator: Ian Campbell

14:30 15:10 **Deon J. de Beer** (Vaal University of Technology, South Africa)
AM as Tool to support Sustainable Development

15:10 15:50 **Richard Hague** (Loughborough University, GB)
Is Additive Manufacturing an Environmental Panacea?

15:50 16:00 **Break**

International trends in additive manufacturing Moderator: Terry Wohlers

Overview and round table

16:00 17:00 16:00-16:10 **Paulo Bártolo**, 16:10-16:20 **Deon J. de Beer**, 16:20-16:30 **Richard Hague**, **Ian Campbell**, 16:30-16:40 **Ian Gibson**, 16:40-16:50 **Phillipe Bertrand /Igor Yadroitsev /Maria Averyanova**, 16:50-17:00 **Luca Iuliano**, 17:00-17:10 **Jukka Tuomi**, **Jouni Partanen**

17:00 18:00 **POSTER SESSION** Moderator: Sadegh Rahmati (List of Authors on page 4)

18:00 19:30 **GARPA Global Summit** (Garpa Members Only)

20:00 23:00 **Ice-Breaking Party in Hotel Perla, Captain Cook Disco**

8:30 9:00 **Registration**

Past, Present and Future of Medical Applications Moderator: Horatiu Rotaru

9:00 9:40 **Stephen L. Rouse** (Walter Reed Army Medical Center, USA)
New Technologies Result in New Opportunities:
 Rapid Manufactured Custom Implants, Fixation, and Medical Devices

9:40 10:20 **Vladimir Mironov** (Medical University of South Carolina, USA)
Toward Organ Printing: Future of Rapid Prototyping in Tissue Engineering

10:20 10:30 **Break**

New Possibilities of Additive Manufacturing in Medicine Moderator: Stephen Rouse

10:30 11:00 **Nataša Ihan Hren** (Faculty of Medicine, University of Ljubljana, Slovenia)
Three-dimensional soft tissue analysis of pre and postoperative CIII orthognatic patients

11:00 11:30 **Michele Truscott** (Central University of Technology Free State, SAR)
RP and RM in Medical Product Development

11:30 12:00 **Paulo Jorge da Silva Bártolo** (Polytechnic Institute of Leiria, Portugal)
Biomedical Applications of Additive Fabrication

12:00 12:10 **Break**

Engineers and Doctors Walking Hand in Hand Moderator: Nataša Ihan Hren

12:10 12:40 **Horatiu Rotaru** ("Iuliu Hatieganu" University of Medicine and Pharmacy, Romania)
3D Custom-Made Implants for the Reconstruction of Craniofacial Bone Defects. Evaluation at Seven Years of Use

12:40 13:10 **Gatto Matteo** (Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, GB)
Investigating the effectiveness of Three-Dimensional-Printing for producing realistic physical surgical training phantoms.

13:10 13:40 **Rahmati, Sadegh** (Majlesi branch of Islamic Azad University, Iran)
Computer assisted surgical planning in THR and fabrication of hip prostheses via additive manufacturing technologies

13:40 14:20 **Lunch packet**

14:20 20:00 **Conference Excursions** to MBN Nanomaterialia in Treviso (Italy) where you'll learn in detail about the new platform for micro manufacturing applications - Manudirect direct laser sintering micro-manufacturing machine. The host company MBN Nanomaterialia will welcome you with food and beverages.

The excursion is limited to 50 persons, therefore visitors will be admitted on first come first serve basis, according to the arrival of the application forms.



The first Conference Bus will drive directly from MBN Nanomaterialia to Conference Dinner in Goriška Brda.



The second Conference Bus will leave the **Hotel Perla at 19:00**. Bus will be located outside the Hotel and will drive directly to Conference Dinner in Goriška Brda Wine Cellar.

20:00 23:30 **Conference Dinner**
 Goriška Brda Wine Cellar, Zadružna cesta 9, 5212 Dobrovo



The conference bus will take the participants back to the Hotel Perla.



24:00 **Hotel Perla**, Kidričeva 7, 5000 Nova Gorica

8:30 9:00 **Registration**

Opening session: Medicine, Education, Manufacturing, Research Moderator: Paulo Bártolo

9:00 9:30 **Partanen Jouni** (Aalto University School of Science and Technology,)
Toolless layer-wise production methods - adaptable and fast way to customer

9:30 9:40 **Break (changing rooms)**

		NINA MEETING ROOM	PINTA CONFERENCE HALL
		PARALLEL SESSION 1: Applications of Additive Manufacturing in Medicine Moderator: Michele Truscott	PARALLEL SESSION 2: Additive Manufacturing Supporting Education Moderator: Ken Patton
9:40	10:00	Salmi Alessandro (Politecnico di Torino, Italy) Evaluation of innovative techniques for dental crowns manufacturing	Tenhunen Lauri (HAMK University of Applied Sciences, Finland) Rapid Prototyping Service Model by the CDIO Educational Framework
10:00	10:20	Delgado Javier (AIMME, Spain) FABIO project: Development of innovative customized medical devices through new biomaterials and additive manufacturing technologies.	Jordaan Gerrit (Central University of Technology, Free State, SAR) A Business Model for Rapid Prototyping in South Africa
10:20	10:40	Ljungblad Ulric (Arcam AB, Sweden) Statistical process control applied to Additive Manufacturing enables series production of orthopedic implants	Widden Martin (LANCASTER UNIVERSITY, GB) Use of FDM in an undergraduate student project: design, build and test a model wind turbine
10:40	10:50	Break	
		PARALLEL SESSION 3: Additive Manufacturing: Materials and the Quality Assurance Moderator: Nicolae Balc	PARALLEL SESSION 4: Technologies for Additive Manufacturing Moderator: Gerrit Jordaan
10:50	11:10	Averyanova Maria (ENISE, Ecole Nationale d'Ingenieurs de Saint-Etienne, France) Effect of initial powder properties on final microstructure and mechanical properties of parts manufactured by Selective Laser Melting	Iuliano Luca (Politecnico di Torino, Italy) Surface and subsurface features of micro electro drilled parts produced by SLS
11:10	11:30	Pilipović Ana (Faculty of Mechanical Engineering and Naval Architecture, Croatia) Influence of Laser Sintering Parameters on Mechanical Properties of Polymer Products	Yadroitsev Igor (ENISE, Ecole Nationale d'Ingenieurs de Saint-Etienne, France) Selective laser melting in micro manufacturing
11:30	11:50	Beard Mark (University of Exeter, GB) Evaluation of Laser Energy Density Effects on Mechanical Properties of Selective Laser Sintering Components Using Raman Spectroscopy	Nicolae Balc (Facultatea Constructii de Masini, Cluj-Napoca, Romania) Comparison between SLM and SLS in producing complex metal parts
11:50	12:10	Olivier Gonzalez Djamila (Institut Quimic de Sarria, Spain) New Method for Optimized Design of New Materials Systems Intended to be Applied at Additive Manufacturing Techniques	Booyesen Gerrie (Central University of Technology, Free State, SAR) Combining Additive Fabrication and Conventional Machining Technologies to Develop a Hybrid Tooling Approach
12:10	12:30	Rietzel Dominik (Institute of Polymer Technology, Germany) Investigation of the Particular Crystallization Behaviour of Semi-Crystalline Thermoplastic Powders Processed by Selective Laser Sintering	Minetola Paolo (Politecnico di Torino, Italy) Analysis of alignment procedures for contactless inspection of Rapid Manufactured parts
12:30	13:30	Lunch	

Technologies and Applications of Additive Manufacturing		Moderator: Slavko Dolinšek
13:30	13:50	Ederer Ingo (voxeljet technology GmbH, Germany) Latest improvement in industrial 3D-printing
13:50	14:10	Ritt Stefan (MTT Technologies GmbH, Germany) Laser based generative manufacturing processes for lightweight structures
14:10	14:30	Prior Fabrizio (MBN Nanomaterialia, Italy) Direct laser micro manufacturing: the MANUDIRECT machine
14:30	14:50	Makovec Renato (Polident, Slovenia) Digital technologies in dental laboratories
14:50	15:10	Stefano Sartor (Sabor s.r.l., Italy) INNOVATION: From the Project to the Object in a Few Hours
15:10	15:30	Antlej Kaja (IB-PROCADD, Slovenia) Potential of DLP technology for designing new products and interpretation of museum objects
15:30	15:50	Uroš Hohkravt (KvadratPlus, design studio, d.o.o., Slovenia) Rapid Prototyping and Jewelry Design
15:50	16:10	Rok Karžinec (University of Maribor, Faculty of Mechanical Engineering, Slovenia) Production of individualized fine interior equipment and accessories by innovating additive technologies
16:10	16:30	CONFERENCE WRAP UP

POSTER SESSION WEDNESDAY, 22. SEPTEMBER, 17:00-18:00

Moderator: Sadegh Rahmati (Authors listed in alphabetical order)

Balić Senad (University of Zenica, BIH)
Analysis of the Applicability Degree of Multiple Rotating Reference Frames (MRF) Method for Design of Automotive Water Turbopumps

Belgiu George (Polytechnic University of Timisoara, Romania)
Product Creation Development from Innovative Simulation Methods to Product Life Management System

Godec Damir (Faculty of Mechanical Engineering and Naval Architecture Croatia)
Application of Rapid Prototyping in Polymer Product Development – Case Studies

Kheirollahi Nataj Bisheh Hossein (Imam Hossein University, Tehran, Iran)
Manufacturing of Dental Prostheses Based on Rapid Prototyping Technology

Krznar Matic (Regionalni tehnološki center Zasavje d.o.o., Slovenia)
Selective Laser Sintering of Composite Materials Technologies

Kühnlein Florian (Institute of Polymer Technology, Germany)
Degradation Behavior and Material Properties of PA12-Plastic Powders Processed by Powder Based Additive Manufacturing Technologies

Lestan Zoran (EMO - Orodjarna d.o.o., Slovenia)
Deposition of Tool Steel Coatings Using LENS technology

Luca Alina (Facultatea Constructii de Masini, Cluj-Napoca, Romania)
Dimensional accuracy analysis in casting using easily fusible models

Maricic Sven (University of Rijeka, Faculty of Engineering, Croatia)
Classification and Elimination of Errors During the Radiological Recording

Ohidin Patrik (Arcam AB, Sweden)
Series production of CE-certified orthopedic implants with integrated porous structures for improved bone ingrowth

Popan Ioan Alexandru (Facultatea Constructii de Masini, Cluj-Napoca, Romania)
A modeling study of the WJC etching process of steel and stainless steel materials

Udroiu Razvan (TRANSILVANIA UNIVERSITY OF BRASOV, Romania)
Optimisation of rapid prototyping process for electrical vehicle manufacturing

van der Walt Jacobus (Central University of Technology, SAR)
Patient specific radiation field shaping masks through low temperature thermal-spray

Weiss Edmund (Poznan University of Technology, Poland)
Accuracy of Parts Manufactured by Rapid Prototyping Technology