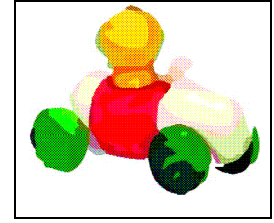




International Mini-Master



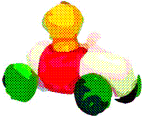




Advanced casting design of automotive components

June 22nd-26th, 2009

DTG

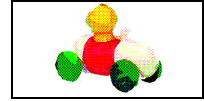
**Dipartimento di Tecnica e Gestione dei Sistemi Industriali
Università di Padova, sede di Vicenza**

Str. S. Nicola, 3
Vicenza (Italy)

organised in the frame of EU NADIA Project		
New Automotive components Designed for and manufactured by Intelligent processing of light Alloys		 6 th Framework Program NMP Research Area Contract 026563-2
with the cooperation of		
	Associazione Italiana di Metallurgia	
	Fondazione Studi Universitari di Vicenza	
	Intelligent Manufacturing Systems	



International Mini-Master



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Str. S. Nicola, 3 - Vicenza (Italy)

Objectives

- This one-week course is intended for scientists and engineers working in Industry or Academia with design, manufacturing or R&D of automotive light metal castings.
- It is organized by the NADIA consortium with partners from Automotive-, manufacturing- and materials Industry in an integrated R&D program on development of automotive light metal castings
- The course will be presented by leading experts from Industry and Academia

Topics Covered

Intelligent Processing

Fundamentals of solidification of light alloys

Basics of casting technology

Processing, microstructure and properties of cast light alloys

Heat treatment of cast light alloys

Fundamentals of casting processes simulation

Fundamentals of heat treatment process simulation

Micromodelling of light alloys microstructural evolution

CAE Integrated tools for the development of automotive components

Optimisation tools in automotive design

Automotive components by Intelligent Processing

Lecturers

Lars Arnberg, NTNU, Norway

Franco Bonollo, University of Padova, Italy

Giuseppe Cupitò, CRF, Italy

Helmut Gese, MATFEM, Germany

Nicola Gramegna, Enginsoft, Italy

Fabio Grosselle, University of Padova, Italy

Amaia Igartua, Tekniker, Spain

Jens Kappey, MAGMA, Germany

Iñigo Loizaga, CIE Automotive, Spain

Roberto Molina, TeksidAluminium, Italy

Stefano Odorizzi, Enginsoft, Italy

Wolfgang Rehm, Daimler, Germany

Salem Seifeddine, INGUS, Sweden

Ingvar Svensson, Univ. of Jönköping, Sweden

Jesper Thorborg, MAGMA, Germany

Giulio Timelli, University of Padova, Italy

Ulrich Weiss, Ford, Germany

Program Schedule

June 22nd, Monday		
12.00-13.30	Reception and Light Lunch	
13.30-14.00	Welcoming Comments by Organizing Committee <i>Lars Arnberg (NTNU), Stefano Odorizzi (Enginsoft), Franco Bonollo (DTG)</i>	
14.00-15.30	Microstructures and phase diagrams Nucleation and grain refinement <i>Lars Arnberg (NTNU)</i>	Fundamentals of solidification and casting technology
15.30-16.00	<i>Break</i>	
16.00-17.30	Fundamentals of solidification and casting technology - Growth of dendrites and eutectics - Solute redistribution / microsegregation <i>Lars Arnberg (NTNU)</i>	
June 23rd, Tuesday		
09.00-10.30	Casting processes for Al and Mg alloys <i>Lars Arnberg (NTNU) and Franco Bonollo (DTG)</i>	Processing and properties of cast alloys
10.30-10.45	<i>Break</i>	
10.45-12.15	Overview of casting defects <i>Franco Bonollo (DTG)</i>	
12.15-13.00	Microstructural features of cast light alloys <i>Giulio Timelli (DTG)</i>	
13.00-14.00	<i>Lunch</i>	
14.00-15.00	Fundamentals of heat treating of light alloys castings <i>Franco Bonollo and Fabio Grosselle (DTG)</i>	
15.00-16.00	Experimental techniques for microstructure evaluation <i>Giulio Timelli (DTG)</i>	
16.00-16.15	<i>Break</i>	
16.15-17.30	Process-microstructure-defects correlations for light alloys castings <i>Franco Bonollo and Giulio Timelli (DTG)</i>	
June 24th, Wednesday		
09.00-09.45	Introduction to Casting Process Modelling Integration of Casting Process Simulation and Casting Design <i>Jens Kappey (MAGMA)</i>	Fundamentals of Numerical Modelling of Casting and Heat Treatment Processes
09.45-11.00	Modelling Mold Filling and Solidification - Background & Examples Simplified Mapping of Local Properties <i>Jens Kappey (MAGMA)</i>	
11.00-11.15	<i>Break</i>	
11.15-13.00	Modelling Solid Mechanics during Solidification and Cooling Background and Examples <i>Jesper Thorborg (MAGMA)</i>	
13.00-14.00	<i>Lunch</i>	
14.00-15.00	Predicting of Local Microstructure of cast Aluminium alloys <i>Ingvar Svensson (Jönköping University), Salem Seifeddine (INGUS)</i>	
15.00-15.45	Predicting of Local Defects in Cast Alloys <i>Jesper Thorborg (MAGMA)</i>	
15.45-16.00	<i>Break</i>	
16.00-17.00	Modelling of Heat Treatment - Temperatures and Solid Mechanics <i>Jesper Thorborg (MAGMA)</i>	
17.00-18.00	Outlook – Heat Treated Microstructure and Properties, Core and Mold Simulation, Optimization, etc. <i>Jens Kappey (MAGMA)</i>	

June 25th, Thursday		
09.00-09.45	Inputs for Simulation: Material Data and Process Conditions <i>Nicola Gramegna (Enginsoft)</i>	CAE Integrated tools for the development of automotive components
09.45-10.45	Output from Simulation: Interpretation of Results and use of defect criteria <i>Nicola Gramegna (Enginsoft)</i>	
10.45-11.00	<i>Break</i>	
11.00-11.45	Output from Simulation: Local mechanical properties and Residual stress/strain <i>Nicola Gramegna (Enginsoft) and Franco Bonollo (DTG)</i>	
11.45-12.30	Integrated optimisation of product development <i>Nicola Gramegna (Enginsoft)</i>	
12.30-13.00	Advanced surface treatments of light alloys castings in view of wear resistance <i>Amaia Igartua (Tekniker)</i>	
13.00-14.00	<i>Lunch</i>	
14.00-15.45	Linking process simulation with FEM codes (Static, TMF) and Intelligent Processing of Aluminium Cylinder Head by Gravity Casting <i>Wolfgang Rehm (Daimler) and Helmut Gese (Matfem)</i>	Automotive components by Intelligent Processing
15.45-16.15	<i>Break</i>	
16.15-18.00	Linking process simulation with FEM codes (Crash) and Intelligent Processing of Magnesium Structural Component by High Pressure Die Casting <i>Ulrich Weiss (Ford) and Helmut Gese (Matfem)</i>	
June 26th, Friday		
09.00-10.30	Intelligent Processing of Al Engine Block by Low-Pressure Die-Casting <i>Roberto Molina (TeksidAluminum) and Giuseppe Cupitò (CRF)</i>	Automotive components by Intelligent Processing
10.30-12.00	Intelligent Processing of Al Steering Component by High Pressure Die Casting <i>Iñigo Loizaga (CIE Automotive)</i>	
12.00-12.30	Final Comments and Closure of the Mini-Master <i>Lars Arnberg (NTNU)</i>	

Registration and Organisation Issues

Mini-Master Secretariat

DTG

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Fax +39 0444 998889

e-mail: bonollo@gest.unipd.it

Mini-Master Venue

The Mini-Master will be held at DTG, Università di Padova, Department of Vicenza, Stradella S. Nicola 3, Vicenza.

Language

English will be the Mini-Master language.

Proceedings

The Presentations will be published on the Cd-Rom proceedings and issued to participants on arrival at the Mini-Master.

Registration Fee

Full Mini-master participation: EURO 1000 + 20% VAT

Day 1 + Day 2: EURO 500 + 20% VAT

Day 3 + Day 4 + Day 5: EURO 700 + 20% VAT

NADIA Partners . Free of charge

Registration Form

The **Registration** form is on-line at: <http://www.nadiaproject.org/node/72>

Registration deadline: 15th June 2009

Payment method

Bank transfer using the following bank details:

Name of account holder: Dipartimento di Tecnica e Gestione dei Sistemi Industriali (DTG)

Fiscal code: 80006480281

VAT Registration number: 00742430283

Name of bank: Antonveneta – Gruppo Montepaschi

IBAN: IT28B0504012134000001015578

Please specify NADIA Mini-Master as reason for payment.

The registration fee includes lunch and coffee breaks and an official gala dinner will take place on Thursday 25th June.

Suggested Hotels

Please make your hotel reservation at your earliest convenience. There will be no official Mini-master agency.

Albergo Campo Marzio (****)
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Tel. +39 0444 545700
Fax +39 0444 320495
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