

Curriculum Vitae MICHELE MONNO



Michele Monno (August 20, 1958) is Full Professor in Manufacturing Engineering (ING-IND/16 “Tecnologie e Sistemi di Lavorazione Meccanica”) at the Mechanical Engineering Department (DMEC) – Politecnico di Milano, Italy.

Since 2005 is the Scientific Director of MUSP Lab (Machine Tools Competence Center) at the Piacenza Technopole. The MUSP Lab is part of the High Technology Network (Emilia Romagna region).

Education, Professional experiences and other information

After the Master Degree in Mechanical Engineering, in the '80s he was involved, with a small group of young engineers, in a Start-up experience focused on thermal measurements and detection of energetic consumption for industrial plants.

From 1987 to '90 he was employed at first, as Software Engineer, at the ICT Division of IMI (Istituto Mobiliare Italiano) in Rome, and afterwards, as Project Manager, at the Mandelli SpA company in Piacenza, being involved in a research project on “Assembly automation in machine tools manufacturing” (financed by the UE in the EUREKA Famos Programme).

From 1990 he joined Politecnico di Milano, at first as Research assistant, and later as Associate professor, at the Mechanical Engineering Department (DMEC).

From 2004 he is Full professor in Manufacturing Engineering (ING-IND/16 “Tecnologie e Sistemi di Lavorazione Meccanica”) at the Mechanical Engineering Department (DMEC) – Politecnico di Milano, Italy.

Marital status: Married, 2 sons.

Teaching activities

Currently (Academic Year 2018-'19) his courses are:

- Advanced Manufacturing Processes (Master in Mechanical Engineering, I year – Milano Bovisa Campus), 10 cfu.
- Tecnologia Meccanica 1 (Bachelor in Mechanical Engineering, II year– Piacenza Campus), 10 cfu.

Academic, Professional roles

- Scientific Director of the MUSP Lab, research center of the MUSP Consortium (including 10 companies in the field of machine tools and manufacturing systems, two universities and local institutions) at the Piacenza Technopole.
- 2010-2016 Coordinator of the “Mechanics and Materials” Platform, High Technology Network of Emilia Romagna, Italy
- 2004-'15 Coordinator of the Mechanical Engineering Bachelor and Master Courses Politecnico di Milano.
- 2010-'18 Steering Committee Member of the AiTeM (Associazione Italiana di Tecnologie Manifatturiere).
- Member of SME – Society of Mechanical Engineers.

Research Activities

As documented by the list of publications, the scientific activity has been developed in the field of non-conventional machining technologies with particular reference to the pure waterjet (WJ) and abrasive waterjet (AWJ) technologies, electro-discharge machining (EDM) and high definition plasma (HDP).

The guideline of the activity was the improvement of cut quality and the modeling of the characteristics of finishing and taper of the cutting kerf for a wide range of materials of industrial interest such as: aluminum, stainless steel, titanium, composites (FGRP, MMC), glass, ceramics, marble and stone.

As part of a European project, it was also investigated the possibility of using pure jets in descaling and pickling of metal workpieces. This study has opened the perspective to replace the shot peening in some industrial application, with the aim to induce a residual stress without altering the surface finish of metal parts.

It was also considered the use of WJ/AWJ and plasma arc technologies in the prototyping of large scale foundry models and in rapid tooling of EDM electrodes.

The approach was both theoretical and experimental, while the research items were developed in parallel with the implementation of the non-conventional machining technology laboratory at the Mechanical Engineering Dept.

Later, the objectives were enlarged involving applications (as the junction of thin metal plates by a of plastic deformation process, the micromachining of silicon, the geometrical quality improvement in CNC turning technology and the comparison between unconventional processes).

Since 2006 the research activity has been addressed to the improvement of machine tools performance with a new facility, the MUSP Lab, in Piacenza.

Among the research activities, developed in recent years in cooperation with companies, the study of metal foam filling to improve the dynamic behavior of machine tools structures and the research on production processes for metal foam/sponges; the substitution of lubricant fluids in metal cutting with liquid nitrogen (in particular for titanium alloys machining).

National and International projects:

CNR

1993 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project: "GENERAZIONE AUTOMATICA DI CICLI DI LAVORAZIONE E CONTROLLO".

1994 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project: "MICROFORATURA PER ELETTROEROSIONE".

1996 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project: "REALIZZAZIONE DI UN GENERATORE SPERIMENTALE DI PLASMA FREDDO PER TRATTAMENTI SUPERFICIALI".

MIUR

1991-'97 Member of the Research Unit - Politecnico di Milano for the project:

"SVILUPPO DI TECNOLOGIE DI PRODUZIONE PER L'OTTENIMENTO DI ELEVATE QUALITÀ SPECIFICHE"

(National Coordinator: Prof. I. Crivelli Visconti – UniNA; Research Unit Responsible: Prof. F. Jovane - PoliMI).

1998-'00 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

"COMPRESSIONE DEI TEMPI NELLA PRODUZIONE DI STAMPI" – PRIN 1997

(Principal Investigator: Prof. P. Bariani - UniPD).

dal 1998 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

"Laboratorio per le Applicazioni Industriali dei Materiali non Convenzionali"

Financed by Parco Scientifico e Tecnologico del Lazio Meridionale (PA.L.MER.)

(Project Responsible: prof. L. Carrino - UniCassino).

2000-'02 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

"TECNICHE NON CONVEZIONALI PER LA GIUNZIONE DI ELEMENTI DI CARROZZERIA IN MATERIALI LEGGERI" – PRIN 2000 (Principal Investigator Prof. R. Ippolito - PoliTO).

2001-'02 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

"TECNOLOGIE DI LAVORAZIONE DELLE PIETRE NATURALI" – PRIN 2001

(Principal Investigator: Prof. Luigi Carrino - UniCassino)

2002-'04 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

“TECNICHE NON CONVEZIONALI PER LA GIUNZIONE DI ELEMENTI DI CARROZZERIA IN MATERIALI LEGGERI”
–PRIN 2002 (Principal Investigator: Prof. R. Ippolito - PoliTO).

2004-‘06 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

“TECNOLOGIE DI LAVORAZIONE DELLE PIETRE NATURALI” – PRIN 2004

(Principal Investigator: Prof. L. Carrino - UniCassino).

2006-‘08 Principal Investigator for the project:

“TECNOLOGIE INDUSTRIALI DI LAVORAZIONE DELLE SCHIUME METALLICHE - TILAS” – PRIN 2006.

2009-‘10 Principal Investigator for the project:

“TECNOLOGIE INTEMA” – PRIN 2008.

2014-‘18 Scientific Coordinator of the CFI (Cluster Fabbrica Intelligente) project:

“HIGH PERFORMANCE MANUFACTURING”.

UE

1994-'96 Scientific Coordinator of the Research Unit - Politecnico di Milano for the Concerted Action:

"QUALITY IMPROVEMENT OF WATER JET CUTTING", founded by UE in the frame of the BRITE-Euram II Programme.

1995-'97 Scientific Coordinator of the Research Unit - Politecnico di Milano for the project:

"HIGH QUALITY HYDRO ABRASIVE JET MACHINING OF MULTYLAYER HYBRID MATERIALS", founded by UE in the frame of the BRITE-Euram II Programme.

1999-'01 Scientific Coordinator for the Mechanical Engineering Dept. – Politecnico di Milano and Steering Committee for the project:

"STUDY AND DEVELOPMENT OF A DESCALING AND DECARBONISATION SYSTEM FOR METALLIC WIRE AND TUBE USING HIGH PRESSURE WATER JET", founded by UE in the frame of VFP.

1999-'02 Scientific Coordinator for the Mechanical Engineering Dept. – Politecnico di Milano and Steering Committee for the cooperative project:

"ABRASIVE WATER JET – A CLEAN TECHNOLOGY" (ERB IC15 CT98 0821), financed by the UE in the frame of INCO Copernicus Programme (cooperation with EFTA Countries).

Further Projects

2006-'18 Responsible for more than 60 industrial projects developed by the MUSP Lab for Italian companies.

Patents

MICHELE MONNO is co-author of an International Patent (EPO - European Patent Office, 2002):

CLOSED LOOP POWDER DISPENSER FOR THE ABRASIVE WATER JET TECHNOLOGY

Authors: M. Annoni, A. Galbiati, M. Monno, A. Vergari.

Publications

MICHELE MONNO is co-author of more than 180 publications (60 scientific papers, including 30 in reviewed international journals, 100 contributions in proceedings of international conferences, scientific book chapters, technical and educational documents).

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