Joint Conference on Mechanical,

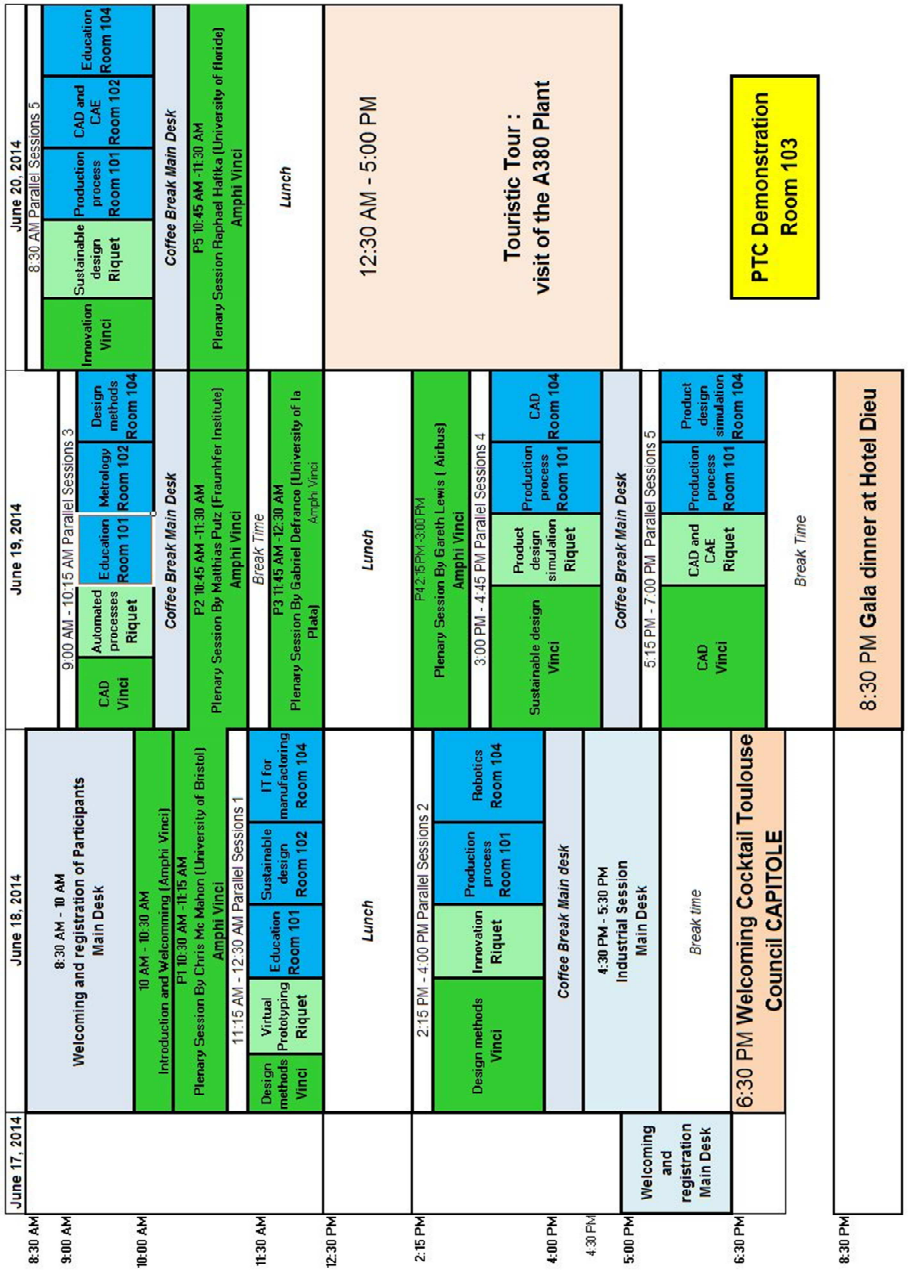
Design Engineering & Advanced Manufacturing

The 2014 international conference related to research on Mechanical, Design Engineering & Advanced Manufacturing aims to be one of the key international meetings of a dynamic interdisciplinary community. It gathers together academics, researchers and industry specialists actively seeking new solutions allowing industrial innovation to be improved and guaranteed.

The conference covers a wide range of topics proposed by AIP Primeca, ADM and Ingegraf networks:

- *Virtual Approaches for Interactive Design and Manufacturing*
- *Integrated Design and Manufacturing*
- *Robust Design*
- *Green Engineering, Eco design*
- *Micro-Systems, mecatronics and robotics*
- *Additive manufacturing and related material and design issues*
- *Multimaterials engineering, manufacturing processes*
- *Innovative design methods TRIZ, C-K and Intellectual Property Management*
- *Multimodal Interfaces for Skills Learning*
- *Methods and Tools for product and production engineering*
- *User Centred Design*
- *Virtual prototyping based design*
- *Product life cycle based design*
- *CAE, CAD, IFC and BIM*
- *Interactive robotic simulation in cooperation*
- *Image processing and analysis*
- *Geometric and functional characterization of products (GD&T)*

Main program



Plenary Sessions

Wednesday, 18th of June 2014
10:00 AM ; 10:30 AM
INTRODUCTION AND WELCOMING (Vinci)

Wednesday, 18th of June 2014
10:30 AM ; 11:15 AM
Plenary Session by Chris MC Mahon (Vinci)
(University of Bristol)
Design research: recent achievements and future challenges

Thursday, 19th of June 2014
10:45 AM ; 11:30 AM
Plenary Session by Matthias Putz (Vinci)
(Fraunhofer Institute for Machine Tools and Forming Technology in Chemnitz, Germany)
Energy and Resource efficiency – drivers for new machine and product design and advanced manufacturing approaches

Thursday, 19th of June 2014
11:45 AM ; 12:30 AM
Plenary Session by Gabriel Horacio Defranco (Vinci)
(University of la Plata, Argentina)
Paradigm changes in the teaching of drawing for engineers: memories of the future expectations for the past

Thursday, 19th of June 2014
2:15 PM ; 3:00 PM
Plenary Session by Gareth Lewis (Vinci)
(Airbus)
Engineering challenges for assembling large commercial aircraft

Friday, 20th of June 2014
10:45 AM ; 11:30 AM
Plenary Session by Raphael Haftka (Vinci)
(University of Florida)
Deciding how conservative a designer should be: Simulating future tests and redesign

Wednesday, 18th of June 2014

11:15 AM ; 12:30 AM Parallel sessions 1

Design methods 1 (Vinci)
Chairman: B. Eynard
Development of tools for multi-material design
F.X. Kromm, H. Wargnier, M. Danis
Improving the modular structure of a product to facilitate the redesign process: an example for eco- design
M. Malatesta, M. Germani, F. Gregori, R. Raffaeli
Seat design improvement via comfort indexes based on interface pressure data
A. Lanzotti, A. Vanacore, D.M. Del Giudice

Virtual prototyping (Riquet)
Chairman: M. Taïx
Parametric virtual concept design of heavy machinery: a case study application
A. Vergnano, M. Pellicciari, G. Berselli
User-centered design of a Virtual Museum system: a case study
L. Barbieri, A. Angilica, F. Bruno, F. Manfredi, F. Mollo, M. Muzzupappa
A multi-layer approach for path planning control in Virtual Reality simulation
S. Cailhol, P. Fillatreau, J.Y. Fourquet, Y. Zhao

Education 1 (room 101)
Chairman: P. Castagna
Learning by doing – a cooperative project between the University of Zaragoza and the semillero de ideas (the ideas hub)
A. M. Biedermann, A. Fernández Vázquez
Learning dimensional metrology in practice: Students controlling a coordinate measuring machine (CMM) from their computers
C. García-Hernández , J.L. Huertas-Talón, R.M. Gella-Marín, J.M. Falcó-Boudet, P. Kyratsis, J.N. Felices
Knowledge discovery from traceability of design projects
X. Dai, N. Matta, G. Ducellier

Sustainable design 1 (room 102)
Chairman: C. Otero
Life cycle analysis in preliminary design stages
L.M. Agudelo, 2, R. Mejía-Gutiérrez, J.P. Nadeau, J. Pailhes
Integration of end-of-life options as a design criterion in methods and tools for ecodesign
Y. Le Diagon, N. Perry, S. Pompidou, R. Pereira Gouvinhas

IT for manufacturing 1 (room 104)

Chairman: S. Gerbino

Conversion of G-code programs for milling into STEP-NC
S. Xú, N. Anwer, S. Lavernhe

Towards Management of Knowledge and Lesson Learned In Digital Factory
M. Bouzid, M. Ayadi, V. Cheutet, M. Haddar

Information feedback from CNC to CAM through OntoSTEP-NC
C. Danjou, J. Le Duigou, B. Eynard

2:15 PM ; 4:00 PM Parallel sessions 2

Design methods 2 (Vinci)

Chairman: G. Fadel

Design process and trace modelling for design rationale capture
E. Moones, E. Yahia, L. Roucoules

New designs of the ceramic bricks of horizontal hexagonal hollow
D. Corbella, F. Fernandez, F. Hernández-Olivares, P. Armisen, C. Corbella

Comparison of different Multiple-criteria decision analysis methods in the context of conceptual design: application to the development of a solar collector structure
M. El Amine, J. Pailhes, N. Perry

About wear damage in straight and crowned misaligned splined couplings
C. Vincenzo, C. Francesca, M. Andrea

Innovation 1 (Riquet)

Chairman: B. Eynard

Toward a descriptive model of knowledge transfer within organisations
J. Mougin, J-F Boujut, F. Pourroy, G. Poussier

An approach for defining a collaborative platform to support the development of corporate engineering standards
R. El-Badawi-El-Najjar, G. Prudhomme, N. Maussang-Detaille, E. Blanco

Towards the success of design projects by the alignment of processes in collaborative engineering
R. XUE1, C. Baron, P. Esteban, D. Esteve, M. Malbert

Innovative field exploration and associated patent portfolio design models
O. Kokshagina, P. Le Masson, B. Weil , Y. Felk

Production process 1 (room 101)

Chairman: Y. Landon

Profile incision modeling in Abrasive Waterjet Milling of Titanium alloys Ti6Al4V
T. Sultan, P. Gilles, G. Cohen, F. Cenac, W. Rubio

Evaluating Current CAD Tools Performances in the Context of Design for Additive Manufacturing
A.H Azman, F. Vignat, F. Villeneuve

Evolution of chip morphology during high strength stainless steel turning
V. Wagner, G. Dessein, J.Y. Gendron

Modeling of the chip geometry in orbital drilling
P.A. Rey, K. Moussaoui, J. Senatore, Y. Landon

Robotics (room 104)

Chairman: M. Taïx

Harmonic Functions-based Type-2 fuzzy logic controller for autonomous navigation of mobile robots
A. Melingui, R. Merzouki, J. B. Mbede

Design graphs for sizing procedures and optimization problems definition of mechatronic systems
M. Budinger, A. Reysset, J-C Maré

A hybrid force/position control for a 6 DOF parallel testing machine
J. Le Flohic, F. Paccot, N. Bouton, H. Chanal

Identification of material and joint properties based on the 3D mapping of the Quattro static stiffness
A. Mekaouche, F. Chapelle, X. Balandraud

Thursday, 19th of June 2014

9:00 AM ; 10:15 AM Parallel sessions 3

CAD 1 (Vinci)

Chairman: G. Peris

Graphic evolution in the representation of easements and protected areas in urban planning and civil engineering drawings
J. Gomis, C. Turón, F. Espinach, F. Julián

An automatic method to extract data from the CAD model for Assembly Sequence Planning
R. Ben Hadj, M. Trigui, N. Aifaoui

Reverse Engineering for manufacturing REFM of parts in a routine context: use of graph description and matching algorithm
S. Ali, P. A. Adragna, A. Durupt

Automated processes (Riquet)

Chairwoman: B. Defez

Arezzo: an emulator for the bench4star initiative
T. Berger, D. Deneux, T. Bonte, E. Cocquebert, D. Trentesaux

Storage Assignment Problem in logistics Warehouses: Optimization of Picking Locations by Cross- Entropy Method
O. Devise, J-L Paris, S. Durieux, P-G Fradet

To mass customize or not to mass customize? The Alpina case
J. Daaboul, B. Novak, J. Le Duigou, C. Da Cunha, A. Bernard

IT for manufacturing 2 (room 101)

Chairwoman: M. Bosch

Product design-Process selection planning Integration based on Modelling and Simulation
V. D. Nguyen, P. Martin, L. Langlois

Preliminary contributions of industrial management methods to microfactory context: case of micro- conveyors integration
M. Bosch-Mauchand, C. Prelle, J. Daaboul, T. A. T. Dang, S. Bradbury Lobato
Multi-sensor approach for multi-scale machining defect detection
L. Dubreuil, Y. Quinsat, C. Lartigue

Metrology (room 102)
Chairman: F. Brusola
Characterization of Ultra-precise aspherical surfaces using Forbes equation
N.El-Hayek, N. Anwer, H. Nouira, M. Damak, O.Gibaru
Influence of part geometrical tolerancing in the REFM methodology
P-A Adragna, S. Ali, Al. Durupt, V. D. Nguyen, P. Lafon
Testing the influence of scanning parameters on 3D inspection process with a laser scanner
S. Gerbino, G. Staiano, A. Lanzotti, M. Martorelli

Design methods 3 (room 104)
Chairman: F. Leali
A new methodology for the optimal design of crash-boxes
T. Ingrassia, V. Nigrelli, D. Tumino
Contribution to the embodiment design of mechatronic system by evolutionary optimization approaches
D. Casner, R. Houssin, J. Renaud, D. Knittel
Design Synthesis Methodology for Dimensional Management of Assembly Process with Compliant non- Ideal Parts
P. Franciosa, A. Das, D. Ceglarek, L. Bolognese, C. Marine, A. Mistry

3:00 PM ; 4:45 PM Parallel sessions 4

Sustainable design 2 (Vinci)
Chairwoman: B. Defez
DFD evaluation for not automated products
D. Francia, G. Caligiana, A. Liverani
Increase Sustainability of Decentralized Electricity with Remotely Monitored Product-Service Systems
K. Wrasse, H. Hayka, A. Pförtner, R. Stark
Disassembly sequencing for end-of-life products
H. Said, P. Mitrouchev, M. Tollenaere

Product design simulation 1 (Riquet)
Chairman: G. Peris
Dynamic analysis of delaminated beams
A. Mahieddine, M. Ouali, A. Mazouz
Optimal design of sandwich plates with honeycomb core
A. Catapano, M. Montemurro
Influence of the cold expansion process on fatigue performance of hard alloys holes
Victor Achard, A. Daidié, M. Paredes, C. Chirol
Design of an experimental device to characterise the behaviour of Total Hip Implants
C. Regnery, J. Grandjean, Y. Ledoux, S. Samper, L. Devun, T. Gradel

Production process 2 (room 101)
Chairman: F. J. Aguilar
A Statistical model for prediction of tool wear and cutting force during high speed trimming of Carbon fibre reinforced polymers
M. Slamani, J-F Chatelain, H. Hamedanianpour
Analytical model for pre-drilled thick composite plates
P. Rahme, Y. Landon, R. Piquet, F. Lachaud, P. Lagarrigue
Using the optimisation methods to minimize the machining time on the free-form surfaces in 3-axis milling
S. Djebali, S. Segonds, J.M. Redonnet, W. Rubio
Definition of a robotic polishing process for aeronautics parts in high strength steel
B. Guichard, H. Chanal, L. Sabourin

CAD 2 (room 104)
Chairman: C. Otero
A preliminary study on Cleft Lip Pathology trough 3D Geometrical Analysis
S. Moos, F. Marcolin, S. Tornincasa, E. Vezzetti, M. G. Violante, D. Speranza
GUI usability improvement for a new digital pattern tool to assist gearbox design
S. Patalano, D. M. Del Giudice, S. Gerbino, A. Lanzotti, F. Vitolo
New standard of dimensioning adapted to the programs CAD. Creation and unification of symbols dimensioning
D. Arancon, F. Sanz-Adan, J. Santamaria, A. Martínez-Rubio
Influence of Minimum Quantity Lubrication design parameters on milling finishing process
A. Duchosal, R. Serra, R. Leroy

5:15 PM ; 7:00 PM Parallel sessions 5

CAD 3 (Vinci)
Chairman: F. Brusola
Genetic algorithm optimization and robustness analysis for the computer aided design of fixture systems in automotive manufacturing
M. Ansaloni, E. Bonazzi, F. Gherardini, F. Leali
Identification of tree species from airborne LIDAR point clouds. Early approaches
J. Santamaría, M.A. Valbuena, F. Sanz, D. Arancón, A. Martínez
Constraint-based decision support system: designing and manufacturing building facades1
A. F. Barco, E. Vareilles, M. Aldanondo, P. Gaborit, M. Falcon

CAD and CAE 1 (Riquet)
Chairman: G. Fadel
Mesh processing for morphological and clinical parameters computation in dog femur
G. Savio, T. Baroni, G. Concheri, M. Isola, E. Baroni, R. Meneghello, M. Turchetto, S. Filippi
Influence of pretension on metallic shear joints
T. Benhaddou, A. Daidié, P. Stéphan, C. Chirol, J-B Tuery

NURBS patch coupling with Nitsche's method for isogeometric analysis
S. Tornincasa, E. Bonisoli, M. Brino

Production process 3 (room 101)
Chairwoman: M. Bosch
Influence of the tool-material couple on the dental CAD CAM prosthetic roughness
N. Lebon, L. Tapie, E. Vennat, B. Mawussi, JP. Attal
Thrust force and torque model applied to the vibratory drilling process
J. Le Dref, Y. Landon, G. Dessein, F. Blanchet
High speed interaction between an abradable coating and a labyrinth seal in turbo-engine application
C. Delebarre, V. Wagner, J.Y. Paris, G. Dessein, J. Denape, J. Gurt-Santanach

Product design simulation 2 (room 104)
Chairman: S. Gerbino
Quality evaluation of bolted assemblies through tightening monitoring and simulation
S. Dols, M. Paredes, P. Morgue
Non-intrusive model coupling: a flexible way to handle local geometric and mechanical details in FEA
M. Duval, J.-C. Passieux, M. Salaün, S. Guinard
Serial manufacturing of lightened ceramic floorings and indirect calculation of energy saving
B. Defez, G. Peris-Fajarnés, R. Martínez-Díaz, L. Monreal Mengual, F. Brusola Simón
Numerical methods in the design process of a sailing yacht
T. Ingrassia, A. Mancuso, D. Tumino

Friday, 20th of June 2014

8:30 AM ; 10:15 AM Parallel sessions 6

Innovation 2 (Vinci)
Chairman: J-F Boujut
Consistency management and PLM interoperability to support collaboration in preliminary design
D. Penciuc, A. Durupt, M. Bricogne, B. Eynard
Facilitating Integration to face modern Quality Challenges in Automotive
A. Riel, S. Tichkiewitch, C. Kreiner, R. Messnarz, D. Theisens
UP: A unified paradigm to compare computer-based and paperbased supporting tools for collective co- located preliminary engineering design activities
T. Gidel, A. L.Guerra, E. Vezzetti

Sustainable design 3 (Riquet)
Chairman : P. Castagna
Toward sustainable manufacturing: evaluation of the economic and ecological impacts of production lines
M. Germani, M. Mandolini, M. Marconi, E. Marilungo
Design methodology for energy efficiency of production system
T.A.L. Nguyen, M. Museau, H. Paris
IT framework for Sustainable Manufacturing
K. Vadoudi, N. Troussier, T. W. Zhu

Production process 4 (room 101)
Chairman: Y. Landon
Analysis of a turning process strongly coupled to a vibro-impact nonlinear energy sink
T. Li, E. Gourc, S. Séguy, A. Berlioz
Material removal distribution in robotized random orbital sanding
R. Poirée, S. Garnier, B. Furet
Burr height study for drilling carbon epoxy composite/titanium/aluminum stacks
X.Rimpault, J-F Chatelain, J. E. Klemberg-Sapieha, M. Balazinski

CAD and CAE 2 (room 102)
Chairman: A. Mancuso
Prediction of CAD model defeaturing impact on heat transfer FEA results using machine learning techniques
F. Danglade, P. Veron, J-P Pernot, L. Fine
The mechanical link between foot and ski and the skis behavior in a model of skating
F. Rey, A. Ferrand
CFD parametric analysis and experimental results on a hydraulic actuator
A. Cirello, T. Ingrassia, D. Tumino

Education 2 (room 104)
Chairman: F. Leali
Multidisciplinar approach in teaching interfaces design: a pilot project
A. Fernández Vázquez, A. M. Biedermann
A multidisciplinary PBL-based learning environment for training non-technical skills in the CAD subject
N.Toledo, J. Lopez, P. Jimbert, I.Herrero
Descriptive geometry 2.0
J.García Mateo, F. Lara Ortega, L. García Calvo
3D Immersive environments in higher education B- learning impentations. Preliminary results
F.J. Aguilar, M. Lucas, M. A. Aguilar, J. Reca, A. Luque, A. Cardona, M. S. Cruz, J. J.Carrión