Computer Aided Technologies for Additive Manufacturing (CAxMan)

The objectives of Computer Aided Technologies for Additive Manufacturing (CAxMan) are to establish Cloud based Toolboxes, Workflows and a One Stop-Shop for CAx-technologies supporting the design, simulation and process planning for Additive Manufacturing.

Let's meet to discuss at the …

.. pre-workshop May 2, 2016

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WMF 2016 BARCELONA
World Manufacturing Forum

The EU project CAxMan will conduct a seminar, presenting what CAxMan and other EU projects are doing to support your future plans for innovations and to extend your network of new opportunities.

The pre-workshop is an informal event to meet the people in EU projects, understanding the objectives and learn more about their capabilities and results.

Location of the event is at CIMNE (Barcelona) with the following address:
MASTER Room. (A3 Building), Campus Nord UPC,
Universitat Politècnica de Catalunya, Street address: Jordi Girona, 1-3

Pre-Workshop, May 2, 2016

(back-to-back to the World Manufacturing Forum 2016, May 3-4 in Barcelona)

Let's meet to discuss …

May 2, 2016, CIMNE Address: Nord UPC,
Universitat Politècnica de Catalunya, Street address: Jordi Girona, 1-3

13:00 – 14:00	**Registration and lunch**
14:00 – 14:05	**CIMNE Introduction and welcome,** Eugenio Oñate, CIMNE
14:05 – 14:30	**CAxMan – Setting the scene,** Tor Dokken, SINTEF
14:30 – 15:00	**Cloudflow – The portal,** Nejc Bat, ARCTUR
15:00 – 15:20	**Project 1 – ComMUnion,** Jean Claude Morel, MISSLER
15:20 – 15:40	**Project 2 – MC-Suite,** Juanan Arrieta, IDEKO
15:40 – 16:00	**Project 3 – Idealism,** Kjell Bengtsson, JOTNE
16:00 – 16:30	**Coffee Break**
16:30 – 16:50	**Project 4 – Velassco,** Abel Coll Sans, CIMNE
16:50 – 17:10	**Project 5 – Maya,** Stephan Weyer, DFKI
17:10 – 17:20	**Mini Break**
17:20 - 18:30	**Cooperation and coming calls (FoF-12 and the future)** Francesca Flamigni, EU, and Interactive session
18:30 – 19:30	**Cocktail supported by CIMNE**

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Registration and Contact info
Web: www.caxman.eu
Mail: laia@cimne.upc.edu

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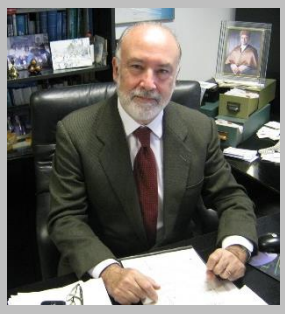
13:00 - 14:00 **REGISTRATION AND LUNCH**

14:00 – 14:05 **CIMNE INTRODUCTION AND WELCOME**
Presenter: Prof. Dr. Eugenio Oñate

Prof. Dr. Eugenio Oñate is a Civil Engineer. His activity in the last 35 years has combined in a balanced manner an academic career as Professor of Structural Mechanics at the Technical University of Catalonia (UPC), a research career in the field of numerical methods and their application to engineering and the transfer of the results of his research to the industrial sector. His research achievements in the field of numerical methods and software for the analysis and design of structures, fluid dynamics and industrial manufacturing processes are internationally recognized. His scientific contributions and software derived from his research activity are of particular relevance to the solution of multidisciplinary problems in the field of civil, industrial, aerospace, marine and naval engineering, among others.



14:05 – 14:30 **CAXMAN – SETTING THE SCENE**
Presenter: Dr. Tor Dokken, SINTEF

ABSTRACT: CAxMan aims to establish analysis-based design approaches that will reduce material usage by at least 12%, and increase weight savings by introducing internal cavities and voids, whilst maintaining component properties. The enhanced analysis-based process planning of CAxMan includes thermal and stress aspects of additive manufacturing, and their interoperability with the design phase. CAxMan also addresses the compatibility of additive and subtractive processes in production in order to combine the flexibility of shape in Additive Manufacturing with the surface finish of subtractive processes.

Dr. Tor Dokken is Chief Scientist and the Research Manager of the Geometry Group in the Department of Applied Mathematics of SINTEF ICT in Oslo, Norway. He is currently the coordinator of the H2020 Factories of the Future Research and Innovation project CAxMan (2015-2018), and the fp7 Integrating Project (2012-2016) IQmulus - A High-volume Fusion and Analysis Platform for Geospatial Point Clouds, Coverages and Volumetric Data Sets. His current scientific interests concern the use of the newly-developed concept of LR-splines in various practical applications, among them data fusion, approximation of big data points sets, and design and analysis for additive manufacturing. .

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14:30 – 15:00 **CLOUDFLOW – THE PORTAL**
Presenter: Mr. Nejc Bat, Arctur

ABSTRACT: CloudFlow has the ambition to provide a Cloud Computing infrastructure based on existing technology and standards that allows SME software vendors to offer current and future customers (being it SME or bigger companies) new cloud. CloudFlow covers Computer Aided Design and Manufacturing (CAD/CAM), Computer Aided Engineering (CAE), Computational Fluid Dynamics (CFD) including pre- and post-processing, simulation of mechatronic systems and Product Lifecycle Management (PLM) including data archival. The centerpiece of the project is the CloudFlow portal. A Web-Enabled Cloud portal that offers automated and semi-automated engineering workflows using the before mentioned software solutions on a pay-per-use basis to enable easy and intuitive usage of an advanced scalable engineering platform. The CloudFlow Portal is in the final phases of testing and should be available for end users in 2016. Thus bringing to the market on of the first true complete engineering cloud solutions.

Mr. Nejc Bat holds a Masters in Industrial Engineering from University of Nova Gorica. He has experience and competences in delivering HPC in cloud computing, especially to small and medium enterprises. Mr. Bat is actively working on numerous EU funded projects and has considerable experience in management and coordination. His main areas of focus are on HPC and Cloud business models, innovation and exploitation as well as innovation transfer an application on the market. The applications that he focuses on are engineering applications (e.g. CAx, CFD, FEM…), visualization methods and remote access to services..

14:30 – 15:00 **PROJECT 1: COMMUNION**
Presenter: Mr. Jean Claude Morel, Missler

ABSTRACT: ComMUnion, a FoF-12 project, enables productive and cost effective manufacturing of 3D metal/ Carbon Fibre Reinforced Thermoplastic (CFRT) multi-material components. ComMUnion will develop a novel solution combining tape placement of CFRTs with controlled laser-assisted heating in a multi-stage robot solution. High-speed laser texturing and cleaning will overcome the limitations of current joining technology to provide greatest performance joints. ComMUnion will rely on a robot-based approach enabling on-line inspection for layerto- layer self-adjustment of the process. Moreover, tools for multi-scale modelling, parametric offline programming, quality diagnosis and decision support will be developed under a cognitive approach to ensure interoperability and usability.

Mr. Jean Claude Morel is graduated in 1980 as mechanical engineer specialized in Micro mechanisms at the ENH Cluses. He start his career in the nuclear research at CENG (Centre d'Etude Nucléaire de Grenoble) which is a dependence of the French CNRS, developing the magnet core of tore supra (thermonuclear fusion accelerator). He continue in the private research analyzing physical properties of materials to defined industrial products at Telemecanic. In 1986 he create his own company to develop services around CAD & CAM application with a strong orientation on the plastic industry. In 1996 He began a new challenge in Missler Company to develop the first CAD application dedicated in designing tools like Mold or Progressive die as a project leader. In 2004 he started to promote and support all Missler products for the international market. From 2013 he has to coordinate the technical work for all EU projects like Terrific, CTC, CloudFlow, Fiberchain, CAxMan, ComMunion.

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15:20 – 15:40 **PROJECT 2: MC-SUITE**
Presenter: Dr. Juanan Arrieta, IDEKO

ABSTRACT: The MC-SUITE project consortium strongly thinks that the current ICT can have a tremendous impact in the productivity increasing the competence and expertise of the European manufacturing companies and especially the SMEs. The MC-SUITE project proposes a new generation of ICT enabled process simulation and optimization tools enhanced by physical measurements and monitoring that can increase the competence of the European manufacturing industry, reducing the gap between the programmed process and the real part. The aim of the project is to develop the MC-SUITE application based on six different modules ready to reduce the gap between the simulated and the real process.

Dr. Juanan Arrieta, is the International R&D project director of IK4-Ideko. He earned his degree in Industrial Engineering at University of Navarra (Spain) in year 1997 and his PhD in Business Administration at University of Mondragon (Spain) in year 2009. Since 1998 he works at IK4-IDEKO R&D Centre, involved as a researcher and project manager. Later, he is promoted to the direction of international R&D projects. He holds an extensive experience in the realisation of R&D projects at a regional, national and international level. Furthermore, he is very experienced in leading industry-driven projects regarding the definition of innovation management strategies, technology roadmapping, competitive intelligence projects, technology transfer or exploitation plans for research results.

15:40 – 16:00 **PROJECT 3: IDEALISM**
Presenter: Mr. Kjell A. Bengtsson, JOTNE

ABSTRACT: The IDEaliSM - Development framework for Multidisciplinary Design and Optimisation - solutions lie in three main deliverables: an advanced integration framework for distributed Multidisciplinary Design and Optimisation, an Engineering Language Workbench (a set of domain specific and high-level modelling languages, ontologies and data standards) and a methodology for service-oriented development processes to redefine the product development process and information architecture to enable collaboration between service oriented Competence Centres in Distributed Development Teams. The project is an ITEA initiative and part of the EUREKA Cluster programme.

Mr. Kjell A. Bengtsson, is a Vice President in Jotne, has a Mechanical Engineering background and a diploma in Marketing. He started out at Volvo Car and General Electric doing CAD/DB applications and later management positions, and is now VP at Jotne EPM Technology, a world leader in PLCS/STEP/Express applications. Kjell has been exposed to the STEP, PLCS and other related (ISO TC84/SC4) standards for the last 25 years and is actively involved in neutral database implementation projects in the most complex defense and aerospace sector projects. Kjell is a Member of the Board of the PDES, Inc organization and supports other industry organizations like NIFRO, FSI, ASD and more.

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16:00 – 16:30 **COFFEE BREAK**

16:30 – 16:50 **PROJECT 4: VELASSCO**
Presenter: Dr. Abel Coll Sans, CIMNE

ABSTRACT: VELaSSCo project (www.velassco.eu) is a three year's EU funded project (FP7) focused in the use of Big Data technologies for post-processing and visualizing huge amounts of data coming from FEM and DEM simulations. The consortium of the project is formed by expert institutions in the fields of numerical simulation and Big Data from several European countries: CIMNE (Spain), JOTNE (Norway), SINTEF (Norway), FRAUNHOFER (Germany), ATOS (Spain), INRIA (France) and UNIVERSITY OF EDINBURGH (United Kingdom).

Dr. Abel Coll Sans: Dr. Abel Coll is a Doctor in Civil Engineering and the Project Manager of the Pre and Postprocessing department at the International Center for Numerical Methods in Engineering (CIMNE) at Barcelona, Spain and currently the coordinator of VELaSSCo project. He is a researcher at CIMNE since 2004, and currently is the coordinator of the GiD Development Team; GiD (www.gidhome.com) is a universal pre and postprocessor for numerical simulations developed at CIMNE. His main areas of expertise are related with preprocessing techniques, specially in mesh generation and computational geometry.

16:50 – 17:10 **PROJECT 5: MAYA - IN CONTEXT OF INDUSTRY 4.0**
Presenter: Mr. Stephan Weyer, DFKI

ABSTRACT:. MAYA aims at developing simulation methodologies and multidisciplinary tools for the design, engineering and management of so-called CPS-based (Cyber Physical Systems) Factories, in order to strategically support production-related activities during all the phases of the factory life-cycle, from the integrated design of the product-process-production system, through the optimization of the running factory, till the dismissal/reconfiguration phase. MAYA finds complete validation in one of the most competitive, advanced and complex industrial sector in Europe, the automotive, where it will accomplish reduced time to production & reduced time to optimization within two use-cases.

Mr. Stephan Weyer, Dipl.-Ing, is researcher at the German Research Centre for Artificial Intelligence (DFKI). His research topics focus on digital planning for decentralized control structures enabled by Cyber-Physical Systems (CPS). He started out as a project leader of the EU-FP7 project PATHFINDER, a roadmap activity for simulation and forecasting technologies. Stephan Weyer is currently responsible for the scientific coordination of the EU-H2020 project MAYA. Besides, he is leading the working group for Digital Manufacturing of the SmartFactoryKL - a technology platform with partners from industry and research to jointly pushing forward the vision of Industrie 4.0.

17:10 – 17:20 **MINI BREAK**

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17:20 – 18:30 **COOPERATION AND COMING CALLS (FOF-12 AND THE FUTURE)**
Presenter: Dr. Francesca Flamigni, EUROPEAN COMMISION (TBC)

This session provides the interaction amongst the participants and the panelist. Dr. Francesca Flamigni, will introduce the plans for next calls and the audience will be encouraged to support the dialogue on new opportunities. Highlights and updates on I4MS will be done by Ms Silvia de la Maza.The panelist provide an introduction to their viewpoints, while the participants are encouraged to drive the session.

Panellist and viewpoints:

Dr. Francesca Flamigni, EU R&D
Prof. Andre Stork, Visualization
Mr. Kjell Bengtsson, Standards
Dr. Mike Jahadi, PDES, Inc
Dr. Tor Dokken, 3D Geometry
Ms Silvia de la Maza, I4MS

18:30 – 19:30 **CIMNE COCKTAIL**

MODERATOR FOR THE WORKSHOP

Dr. Cecilia Soriano, graduated with a BsC in Physics at the University of Barcelona (UB), and has a PhD degree in Physics from the Technical University of Catalunya (UPC). Her research interests are Environmental Engineering, Meteorology and Air Polution Modeling and Atmospheric Remote Sensing with Lidar. She has held a Tenure-track position at the Industrial Engineering and Architecture Schools of UPC (Dept. of Applied Mathematics and Dept. of Physics and Nuclear Engineering), to move later to the private sector, first as Head of Atmospheric Projects at TYPSA-TECNOMA, and later as a Freelance consultant in Environmental Engineering projects. Since 2012 she is Staff Scientist at CIMNE, where she carries out duties related to Research Management , Competitive Fundraising and Scientific Project Management.

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Horizon 2020
European Union Funding
for Research & Innovation

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