

## IGA 2015

1-3 June 2015, Trondheim, Norway

### How to register and submit contributions

Authors are invited to submit individual contributions on any of the conference topics. Submissions and conference registration should be performed electronically via the conference web site:

<http://congress.cimne.com/iga2015>



International Center for Numerical Methods in Engineering

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## Location

The conference will take place at Radisson Blue Royal Garden Hotel, Kjøpmannsgate 23, Trondheim, Norway.

**About Trondheim:** Founded in 997, by the viking king Olav Trygvason, Trondheim is today Norway's third largest city, and one of Europe's foremost centers of research and technology. With a rich history and cultural heritage, Trondheim has much to offer the visitor, from sports and entertainment to art galleries and shopping. Trondheim is also the ideal starting point for a journey to the midnight sun in the north, to the world famous fjords in the west, or to Oslo, the capital of Norway, in the south.

## Preliminary Registration Fees

Registration fees are expressed in Euro. Early registration applicable if paid by 1st of March 2015.

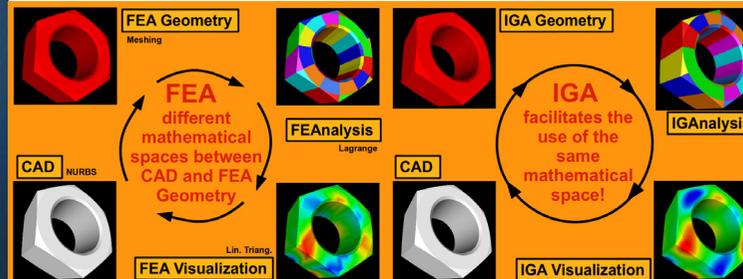
	Early Fees If paid by 1st of March 2015	Late Fees If paid after 1st of March 2015
Delegates	500 €	650 €
Students	350 €	450 €

ECCOMAS and IACM members will have a 5% reduction on the delegate fees.

Registration fees include: Conference proceedings, attendance at all scientific sessions, coffee breaks, reception and banquet.

## Supporting Organizations:

- Norwegian University of Science and Technology, Trondheim, Norway
- SINTEF ICT, Oslo and Trondheim, Norway
- University of Pavia, Pavia, Italy
- European Community on Computational Methods in Applied Sciences (ECCOMAS)
- International Association for Computational Mechanics (IACM)



Left figure: Conventional Finite Element Analysis (FEA) pipeline. Typically, different representations are used for CAD design, FEA-geometry and visualization.

Right figure: Extended Isogeometric Analysis (IGA) pipeline. The same mathematical function space is facilitated during the entire engineering process - from design to visualization.



Special Interest Conference



Special Interest Conference

# IGA 2015

## III International Conference on Isogeometric Analysis

1 - 3 June 2015, Trondheim, Norway



<http://congress.cimne.com/iga2015>

## Rationale

Geometry is the foundation of analysis, yet modern methods of computational geometry have until recently had very little impact on analysis. The reason may be that Finite Element Analysis (FEA), as we know it today, was developed in the 1950's and 1960's, before the advent and widespread use of Computer Aided Geometric Design (CAGD), which occurred in the 1970's and 1980's. The CAGD - FEA interface gives rise to many problems. Perhaps the most significant of all is the problem of translating CAGD files into analysis-suitable FEA geometry and meshing, reputed to take 80% of overall analysis time for complex engineering designs.

The approximate, polynomial-based geometry of FEA also creates difficulties in modeling sliding contact, flows about aerodynamic shapes, buckling of thin shells, etc. It would seem that it is time to look at more powerful descriptions of geometry to provide a new and more efficient basis for analysis. An attempt to address these issues and improve on FEA has led to the introduction and development of Isogeometric Analysis, in which a single geometric representation is utilized for design and analysis.

Following approaches have been proposed: Subdivision Surfaces, NURBS, Hierarchical splines, T-splines and LR B-splines. NURBS are the industry standard for CAGD systems used in engineering design. NURBS-based isogeometric analysis has already been applied to fluids, structures, fluid-structure interaction, phase-field modeling, electromagnetics, shape and topology optimization, material modeling (e.g., implicit gradient damage models), discrete and diffuse modeling of crack propagation, etc. Hierarchical splines, T-splines, and LR B-splines that allow efficient local refinement while maintaining higher-order continuity and exact geometry, have recently attracted increasing attention. The purpose of this conference is to bring together experts in geometry and analysis interested in the development of the new generation of analysis procedures based on modern methods of computational geometry.

## Important Dates

Deadline for presenting a one page abstract	15 December 2014
Acceptance of the contributions	20 January 2015
Deadline for early payment	1 March 2015

## Conference Organizers

### Local Organising Committee

**Trond Kvamsdal (Chair)**

Dept. of Mathematical Sciences, NTNU, Norway

**Tor Dokken (Vice-Chair)**

SINTEF ICT, Oslo, Norway

**Kjell Magne Mathisen (Vice-Chair)**

Dept. of Structural Engineering, NTNU, Norway

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**Ferdinando Auricchio**, University of Pavia, Pavia, Italy

**Yuri Bazilevs**, University of California, San Diego, CA, USA

**David Benson**, University of California, San Diego, CA, USA

**Tor Dokken**, SINTEF ICT, Oslo, Norway

**Thomas J. R. Hughes**, University of Texas at Austin, USA

**Trond Kvamsdal**, NTNU, Trondheim, Norway

**Alessandro Reali**, University of Pavia, Pavia, Italy

## About IGA

The third International Conference on Isogeometric Analysis (IGA 2015) will be organized in Trondheim, Norway on 1-3 June 2015. The first conference of these series was held in Austin (Texas) 13-15 January 2011, and the second was held in Austin (Texas) 8-10 January 2014. Both conferences were organized by Professor Thomas J. R. Hughes (University of Texas at Austin) and his coworkers and were considered to be very successful.

The objective of IGA 2015 is to be a meeting place for researchers developing computational methods and scientists and engineers focusing on using Isogeometric methods for addressing challenging applications in science and engineering.

The conference is one of the Special Interest Conferences of the European Community on Computational Methods in Applied Sciences (ECCOMAS). It is also supported by other scientific organisations in Europe and worldwide including the International Association for Computational Mechanics (IACM).

## Technical Program

We aim for having two or three parallel sessions with 30 minutes time slot for each presenter. Furthermore, there will be organised a poster session open for everyone with multiple awards for best student posters.

## Post-Conference Tour to Røros mining town

This colourful and charming timber town was founded in 1646 and has since developed as both a mining and an agricultural community. Included on UNESCO's list of World Heritage Sites as early as 1980. It is home to an active arts and crafts scene, factory outlets, quaint little shops and fine restaurants serving local food made with seasonal produce. Røros is about 2 hours drive south-east of Trondheim near the border to Sweden.

See the official web-page: <http://en.roros.no/>

## ECCOMAS and IACM Support

IGA 2015 is one of the Special Interest Conference of the European Community in Computational Methods in Applied Sciences (ECCOMAS)

[www.eccomas.org](http://www.eccomas.org)

IGA 2015 is one of the Special Interest Conference of the International Association for Computational Mechanics (IACM)

[www.iacm.info](http://www.iacm.info)

