

## Registration

Registration fees are expressed in Euro. Early registration applicable if payment is received before April 20<sup>th</sup>, 2016.

	Early	Late
Delegates	490 €	540 €

## Location

The advanced school is scheduled at the end of *ECCOMAS 2016*, the Europea Congress on Computational Methods in Applied Sciences and Engineering, and will take place at the same venue, the Creta Maris Conference Centre situated hundred meters from the Creta Maris Beach Resort. Creta Maris Beach Resort is just 24 km from the Heraklion International Airport, close to Hersonissos, a long sweepingbay of sandy beach and crystal clear water.

## Accomodation

Participants of the advanced school can refer to hotels listed on the conference website, at the link below:

<http://www.erasmus.gr/microsites/1068/accommodation>

## School Secretariat

CIMNE Congress Bureau

Campus Nord UPC - Building C3 - "Zona Comercial"

Jordi Girona, 1-3 (08034) - Barcelona, Spain

Tel. +34 93 405 4697 / Fax +34 93 205 8347

Email: [iga-school-sec@cimne.upc.edu](mailto:iga-school-sec@cimne.upc.edu)

<http://congress.cimne.com/igaschool2016>

An ECCAM advanced school on

# Isogeometric Analysis

Fundamentals and Applications

*June 10-12, 2016, Crete (Greece)*

Under auspices of the ECCOMAS Committee on Computational and Applied Mathematics



<http://congress.cimne.com/igaschool2016>

## Objectives

Isogeometric Analysis (IGA) has emerged over the past years as a powerful methodology for approximating solutions to boundary-value problems in science and engineering. In isogeometric analysis, the same spline functions that are used for the CAD representation of geometries are also used as a basis for constructing the numerical approximation. Isogeometric analysis therefore offers the prospect of bridging the gap between computational design and computational analysis, enabling direct computational analysis of CAD-engineered objects.

In addition to the aforementioned unification of computational analysis and design, the increased smoothness of spline approximations, relative to traditional finite elements, enables new numerical approximation techniques for, for instance, shells, cohesive-zone models of failure, Cahn-Hilliard type phase-field models, and free-boundary and shape-optimization problems.

## Isogeometric Analysis: Fundamentals and Applications

The advanced school Isogeometric Analysis: Fundamentals and Applications aims to acquaint its participants with the fundamentals of isogeometric analysis and its applications in fluid and solid mechanics. The course provides an introduction into spline technology, its use in computer aided design and engineering, and the use of splines to construct approximations to boundary-value problems. Furthermore, the course addresses the application of isogeometric analysis to applications where the higher-order smoothness provided by spline functions is indispensable, viz., shell theory, cohesive-zone models in failure mechanics, and free-boundary problems. The course ends with a treatment of more advanced topics, such as adaptive-refinement techniques in isogeometric analysis.

The advanced school is intended for graduate students and research professionals in computational engineering and applied mathematics. Although most of the material is self-contained, basic familiarity with differential equations and finite-element techniques is prerequisite.

## The Island of Crete

Crete is the largest Greek island as well as the fifth largest one in the Mediterranean. It constitutes the natural border of the Aegean Sea to the south as well as to the Libyan Sea to the north. Its distance from mainland Greece is roughly 160 kilometers. Heraklion is one of the four prefectures of Crete, while the homonymous city, located at the north part is the island's capital and its largest harbor. Crete has a very long and rich history dating several thousand years to the past, and is nowadays characterized by its high touristic appeal owed to the island's diverse landscape as well as its unique and colorful culture.

## Organizers

**E. Harald van Brummelen**, *Eindhoven University of Technology, The Netherlands*

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

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

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

## Lecturers

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

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

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

**Giancarlo Sangalli**, *University of Pavia, Italy*

**Michael Scott**, *Brigham Young University, USA*

**Clemens Verhoosel**, *Eindhoven University of Technology, The Netherlands*

## Course Material

The course material consists of the book "Isogeometric Analysis" by J.A. Cottrell, T.J.R. Hughes, and Y. Bazilevs, (Wiley, 2009, ISBN: 978-0-470-74873-2), supplemented with auxiliary lecture notes. All course material will be provided free of charge to the participants at the start of the advanced school.