

# Rafael Vázquez Hernández

*Istituto di Matematica Applicata e Tecnologie  
Informatiche (Italia)*

## A short introduction to isogeometric analysis

### CONTIDO

Isogeometric analysis (IGA) was introduced to improve the interaction between Computer Aided Design (CAD) software and partial differential equations solvers. IGA is a Galerkin method in which the discrete solution is computed with the same functions used in CAD, usually B-splines or NURBS. In the first part of this course we will see the theoretical aspects of IGA. I will start presenting the definition and the main properties of B-splines and NURBS functions, and how they are used in CAD for the definition of the geometry, and in IGA for the discretization of PDEs. The initial definition of IGA will be extended to the approximation of vector fields, defining a discrete De Rham diagram with B-splines. The second part of the course will be focused on the implementation of isogeometric methods, for which we will use the Matlab code GeoPDEs. The differences and the similarities with the finite element method will be also discussed in this second part.

**Inscripción:** É gratuíta. De cara á xestión loxística, se agradecería a inscrición antes do 13 de setembro (elisa.eiroa@usc.es)

**Créditos:** Un crédito no programa de doutoramento “Métodos Matemáticos e Simulación Numérica na Enxeñaría e Ciencias Aplicadas”.

**PFID:** Este curso forma parte da oferta do Plan de Formación e Innovación Docente (pendente)

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|----------------|---------------------------------------------------------------------------|
| <b>Data</b>    | <b>17 -19 de setembro de 2013</b>                                         |
| <b>Lugar</b>   | Aula Magna da Facultade de Matemáticas (USC).<br>Tamén por Adobe Connect. |
| <b>Horario</b> | <b>10:00 – 13:30</b>                                                      |