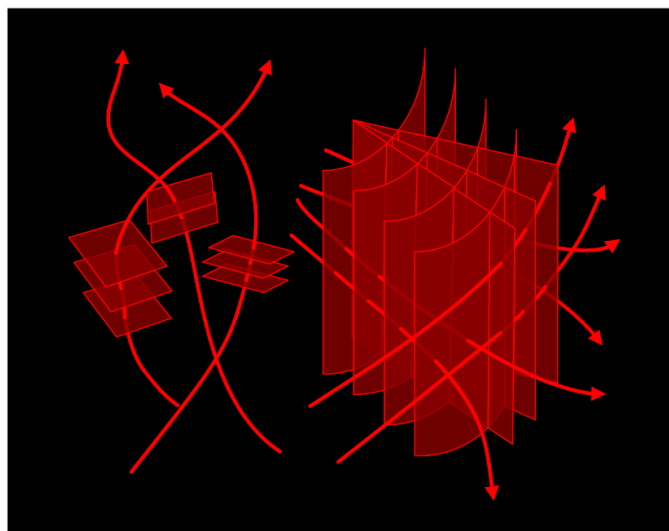


Short Course:

Geometric Methods and Applied Computational Electromagnetics

in the language of
Differential Forms



For Whom?

The course is oriented to anyone with a basic knowledge of electromagnetism; engineers, mathematicians, and physicists who want to take a step beyond the basics to the latest topics in topological electromagnetics.

Lecturers

- **André Nicolet**
Aix-Marseille University
- **Bernhard Auchmann**
CERN
- **Christophe Geuzaine**
Liège University
- **Julio Brégains**
A Coruña University
- **Robert Kotiuga**
Boston University

Program

(June 9-13, 2014)

Monday 9th: J. Brégains

- Matrices and tensor algebra
- Introduction to differential forms
- Maxwell equations in DF formalism

Tuesday 10th: R. Kotiuga

- Differential forms, variational principles, and topology as a barometer of dimensional issues
- A fictionalized history of the FEM in computational E&M
- Geometric inverse problems

Wednesday 11th: Ch. Geuzaine

- Domain decomposition approaches for high-frequency problems
- Curved meshes

Thursday 12th: A. Nicolet

- Principles of transformation optics
- Exotic optical devices: invisibility cloaks and super-lenses
- Perfectly matched layers

Friday 13th: B. Auchmann

- Discrete Maxwell equations
- Discrete boundary-value problems / cell method
- Finite elements and cell methods. Applications

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Contact: gemsandaces@udc.es



UNIVERSIDADE DA CORUÑA



• • • 9-13 June 2014, A Coruña, Spain

Venue



- The course will be held at the modern Museum of Science located near the A Coruña city center.
- A Coruña is a Spanish city with a beautiful coast embracing it. The main promenade, called Paseo de Riazor, can be reached very quickly from the course venue.



Science Museum in A Coruña

- **Science Museum address:**
Plaza del Museo Nacional # 1
Zip Code: 15011, A Coruña-Spain
- You can take a look to it at:
http://www.rottodigital.com/muncyt_exterior_2/muncyt_exterior_2.html
- For more information, see
www.gemsandaces.udc.es

Fees and Registration



Fees

Students

Fees for students: **125 €**. Payments with other currencies will be charged in Euros according to updated currency exchanges. For students registrations, a proper scanned certification will have to be submitted (see Registration).

Professionals

Fees for professionals: **250 €**. Payments with other currencies will be charged in Euros according to updated currency exchanges.



Registration

Registration will be performed through bank transfer payments to A Coruña University. Send email to request information to gemsandaces@udc.es (please, include at least Name, Position and Institution, and a certification in case you choose to pay for a student fees -see above information).



Organizers



- **Julio Brégains**
A Coruña University
- **Robert Kotiuga**
Boston University

A Special Thanks To



- **Luis Castedo**, A Coruña University
- **Carlos Escudero**, A Coruña University
- **Dolores Gomez**, Santiago de Compostela University.
- **Daniel Iglesia**, A Coruña University
- **Stefan Kurz**, Tampere University of Technology

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