**DEPARTAMENTO DE
MATEMÁTICA APLICADA**

**Instituto de
Matemática
Interdisciplinar**

# Seminario de Matemática Aplicada

## Elisabetta Tedeschi
### Norwegian University of Science and Technology

# "Renowable wave energy: potencial and technical challenges"

**Abstract:**

Among the various renewable energy sources, ocean wave energy has been only recently investigated and its exploitation is not yet established. Several different concepts are being studied and tested worldwide to prove both their technical and economical feasibility.

The goal of this lesson will be at first to introduce the potential of wave energy, as a significant, and often neglected, contributor to the World Energy Port- folio. The main challenges to be faced for converting the energy of sea waves into electricity will be addressed and the importance of control techniques to improve the power performance of Wave Energy Converters will be also specifically underlined.

Following, the focus of the lesson will move to larger scale installations, considering the development of multi-MW wave farms. The specific issues related to their grid integration and related power quality concerns will be analyzed. The main results of the scientific research on the importance of WEC control strategies to ease the Wave Farm grid connection will be presented in detail, as a main outcome of project supported by the Abel Grant.

N.B. The lesson will be given in English.

**Elisabetta Tedeschi** received her MSc. Degree (with honours) in Electrical Engineering in 2005 and the PhD Degree in Industrial Engineering in 2009, both from the University of Padova, Italy. Since 2009 she has been working as a Post Doc. at the Norwegian University of Science and Technology (NTNU) in Norway. Having been awarded an Abel Grant within the NILS Mobility Project, she is currently a visiting researcher at the University of the Basque Country in Spain, working in close collaboration with Tecnalia Technology Corporation. Her research interests include design and control of energy conversion systems, with specific focus on wave energy applications, and smart grids and power quality issues.

**Organizado por el Departamento de Matemática Aplicada,
el Grupo MOMAT y el IMI.**

**Viernes, 25 de febrero, a las 11:00 horas**
Seminario Alberto Dou (aula 209)
Facultad de CC Matemáticas, UCM