GSS 2011

Topics

1. Fundamental aspects of the formulations and applications of Fracture and Damage Mechanics to engineering problems.
2. Numerical modelling issues and experimental validation on Fracture Mechanics, and fatigue crack growth and closure phenomena.
3. Fracture and damage models and their applications in aerospace structures and design.
4. Discontinuity finite elements and their software implementation for fracture modelling of composite materials.
5. Fracture and Damage Mechanics applications in plastic metal forming.
6. XFEM, Meshless Methods and Natural Element Methods on solid mechanics numerical simulation on fracture, damage and discontinuities.
7. Fracture/damage and its interaction with fatigue in industrial applications.
8. New trends and applications of damage formulations in metal forming.

Lecturers

Alfredo Balacó de Morais
University of Aveiro,Portugal
Anne-Marie Habraken
University of Liège, Belgium
Elias Cueto
University of Zaragoza, Spain
Fernando Antunes
University of Coimbra, Portugal
Francisco Novo
Structures Section, TEC-MSS, ESA, AOES Group BV, Noordwijk, The Netherlands
Francisco Pires
University of Porto, Portugal
Joaquim Alexandre Pinho da Cruz
University of Aveiro, Portugal
Luís Filipe Borrego
Coimbra Institute of Engineering, Portugal
Luís Galrão dos Reis
Technical University Lisbon,Portugal
Nicolas Moës
Ecole Centrale de Nantes, France
Rui Fernando Martins
New University of Lisbon, Portugal

Chairpersons

University of Aveiro
J. Pinho da Cruz, Assistant Professor
R. de-Carvalho, Research Assistant

The GSS2011 is aimed at engineers and other professionals in all sort of fields who wish to learn more about the current state-of-the-art of Fracture and Damage Mechanics, and their computational application in solving complex engineering problems. The initiative is also tailored not only for researchers and developers in the field but particularly for engineering students with some background on continuum mechanics and numerical simulation techniques.

The GSS2011 is organised by the GRIDS Research Group, a group dedicated to the study and development of numerical methods and simulation techniques in engineering, integrated in the Department of Mechanical Engineering, TEMA Research Unit, University of Aveiro (www.ua.pt), Portugal. The GSS2011 initiative is driven by the Division of Fracture and Advanced Computational Techniques (DiFrACT) of GRIDS.

University of Aveiro

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In general, the typical audience for a course in Fracture and Damage Mechanics comes from several disciplines such as mechanical, civil, aerospace and materials backgrounds.
Furthermore, over the years, Meshless Methods, Natural Element Methods (NEM) and the eXtended Finite Element Method (XFEM), along with the Generalized Finite Element Method (GFEM), have emerged as novel numerical methods to solve various problems in different areas of engineering and sciences such as solid mechanics.

The GSS2011 aims to introduce both the basic theoretical principles and the emerging numerical methods to students, scientists and engineers so that they can be equipped to solve various problems in engineering, sciences and industries. The GSS2011 also aims to provide a practical understanding of both calculation and simulation of fracture and damage phenomena. Specific emphasis will be given to the theoretical coverage of both Fracture and Damage Mechanics, and their computational application, as well as their practical application, to the analysis of structures in the context of Solid Mechanics. The sessions will be headed by top researchers in the field, and it is the purpose of this initiative to provide an open forum of discussion among the participants.

GSS 2011 GRIDS

Aveiro Portugal

Aug 29
Sep 2

University of Aveiro
Dept. Mechanical Engineering

GRIDS Summer School 2011

Fracture and Damage Mechanics in Engineering Applications

1st Announcement
http://grids.web.ua.pt | gss2011@ua.pt

Registration fees and important dates

800 € (without accommodation)
900 € (including accommodation in student residence halls)

Registration deadline: July 15th, 2011

Registration fees include all the course documentation, participation in all sessions, lunches and coffee breaks, welcome reception, social programme and banquet.

The campus of the University of Aveiro is located very close (at walking distance) to the centre of Aveiro, at a convenient distance from hotels, restaurants and a variety of cultural sites. Aveiro is located on the shore of the Atlantic Ocean, near white sand beaches, and it is well-known for its channels, seafood and traditional “egg sweets”. It is often called “The Portuguese Venice” because of its channels and boats, as well as for similar problems when it tried to conquer the water from the sea.

The city dates back at least to the 10th century, when it was known by its first Latin name of "Alavarium", literally, “a place with a watercourse”. The Moors invaded and held it until the 11th century, after which it became popular with Portuguese royalty. In the winter of 1575 a terrible storm closed the entrance to its port, ending a thriving trade in metals and tiles. Aveiro is also famous for its production of salt and for its seaweed harvest, which is used for fertiliser in the area.

Coordinates: 40°37'46.73"N, 8°39'28.51"W

Accommodation

Block reservations at preferential rates can be arranged, by the Organisation, in the student residences of the University of Aveiro and upon request during registration.
Additionally, the city of Aveiro has several 3 and 4 star Hotels, in the city centre, suitable for a nice stay at a walking distance to the GSS2011 venue. Detailed information on this can be accessed, for instance, via the GSS2011 webpage (http://grids.web.ua.pt/grids_ev_GSS2011.html).