

## 2<sup>nd</sup> INTERNATIONAL WORKSHOP ON PHYSICS BASED MODELING OF MATERIAL PROPERTIES AND EXPERIMENTAL OBSERVATIONS

Special focus: *Fracture and Damage Mechanics*

15-17 May, 2013, Antalya - TURKEY

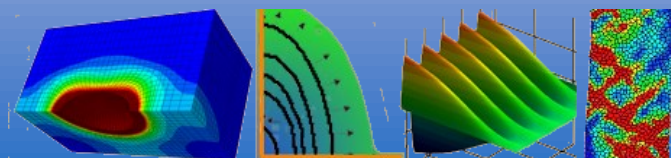


The objective of the workshop, co-organized by Joint Research Centre (JRC) and TOBB University of Economics and Technology (TOBB ETÜ), is to discuss the present status of physics-based models to predict material degradation and failure of mechanical components. Such approaches allow a better understanding of how the material microstructure, environment and loadings affect degradation and failure mechanisms. Physics-based models are also necessary for extrapolation of data beyond operational experience and for correctly predicting the transferability between specimen tests and real components.

The Workshop is funded through the EU Enlargement & Integration Action (E&IA).



TOBB Economy & Technology University Campus, Ankara

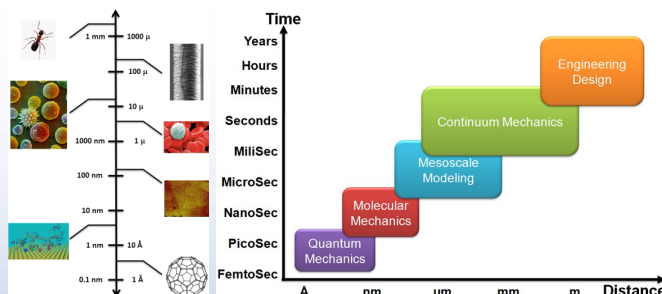


## KEYNOTE SPEAKERS

Prof. Dr. Wolfgang Brocks, CAU, Germany  
Prof. Dr. Jonas Faleskog, KTH, Sweden  
Prof. Dr. Christian Miehe, University of Stuttgart, Germany  
Prof. Dr. John W. Hutchinson, Harvard University, USA  
Prof. Dr. Jean-Baptiste Leblond, Université Paris VI, France  
Prof. Dr. Boris Margolin, St. Petersburg, Russian Federation  
Prof. Dr. Tark Ömer Oğurtanı, Ankara, Turkey  
Prof. Dr. Thomas Pardoen, UCL, Belgium  
Dr. Maxime Sauzay, CEA Saclay, France

## WORKSHOP SCOPE

The structural integrity and functioning of mechanical components is affected by initial defects as well as by time dependent degradation mechanisms such as creep, fatigue, stress-corrosion, irradiation embrittlement and thermal ageing. The modeling and understanding of degradation mechanisms and the predictability of failure loads is constantly evolving. Recently, we have seen a trend towards physics-based models that simulate the degradation and failure processes and mechanisms that operate at different length and time scales. Such approaches allow us to make better prediction of long-term performance and safety margins, transferability between specimens and components.



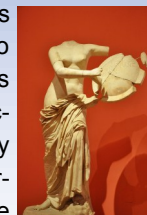
This workshop will give an overview of different physics-based models for fracture and degradation of metallic materials and how they can be used for improved understanding and more reliable predictions. Models of interest include cohesive zones to simulate fracture processes, ductile-brittle transition for ferritic steels, ductile fracture mechanisms such as void growth or localized shear, fatigue crack initiation and short crack growth, environmental assisted cracking. Experimental studies that support such models and case studies that illustrate their use are also within the scope. The Workshop is also an opportunity for scientists and engineers from EU Member States and target countries to discuss research activities that could be a basis for future collaborations.

## ORGANIZERS

Dr. Karl-Fredrik Nilsson, JRC - European Commission  
Dr. Ersin Emre Ören, TOBB Economy & Technology Univ.  
Dr. Cihan Tekoğlu, TOBB Economy & Technology Univ.  
Dr. Tuncay Yalcinkaya, JRC - European Commission

## WORKSHOP VENUE

The workshop will be held in Antalya, which is Turkey's largest international sea resort and also the world's third most visited city. Antalya has been settled since the pre-historic times. The records shows that the land was the home of many civilizations, including Lycian, Greek, Lydian, Persian, Roman, Seljuk and Ottomans. Before the Ancient Roman conquest, Lycia was a kingdom with the first democratic constitution in the world, which later partly inspired the American Constitution. The sun, sea, nature and history combine to form a very popular resort, highlighted by some of the cleanest beaches in the Mediterranean. The 630 km shoreline of Antalya is liberally scattered with ancient cities, harbors, memorial tombs and beaches, secluded coves and lush forests, many of which are easily accessible from the city.



## GETTING THERE

Many direct flights are available to Antalya from different European cities. There is also a wide range of flights from/to Istanbul and Antalya International Airports. From the airport, which is 10 km east of the city one can take shuttle bus Havas (5 €) to most of the hotels. A taxi would cost around 20 € to the city center.



## WORKSHOP FORMAT

The purpose of the workshop is to bring together scientists and researchers from the **EU member states** and the **target countries of E&IA (Enlargement & Interaction Action)** of European Commission.

The workshop will be a 2.5 day event based on the oral presentations from the invited international lecturers, presentations by participants and a poster session.

A number of **grants** to cover travel and accommodation is available for participants from the **E&IA target countries** (citizen or place of work).

In addition to the invited experts and the participants from the target countries, the workshop is open to the international community who are willing to attend or present their work. Participants could be graduate students or scientists from academia or industry.

## REGISTRATION FEE & FUNDING

**There is no registration fee for the workshop.** The refreshments at the coffee breaks, the lunches and the workshop dinner will be **free of charge** for all participants.

The travel costs of attendees with **grant** (economy flight + hotel + daily allowance) from the target countries will be reimbursed after the workshop. European Commission reserves the right to decide on the grants on a case by case basis depending on the available budget.

## TARGET COUNTRIES

In the frame of E&IA (Enlargement & Interaction Action), the JRC offers specialized workshops, advanced training courses, and small projects with a focus on experts from the new member states (Romania, Bulgaria), candidate countries (Croatia, Turkey, The former Yugoslav Republic of Macedonia, Iceland, Montenegro), Potential candidate countries (Serbia, Albania, Kosovo, Bosnia-Herzegovina), FP7 Associate countries (Switzerland, Israel, Norway, Lichtenstein, Faroe Island, Moldova), European Neighborhood Policy countries (Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Jordan, Lebanon, Libya, Morocco, Occupied Palestinian Territory, Syria, Tunisia, Ukraine) and Russia.

**WORKSHOP WEBPAGE:** <http://iwpmeo.etu.edu.tr/>

## KEY DATES

- Abstract submission and grant application 15.03.2013
- Notification of abstract acceptance 01.04.2013
- Announcement of grants 01.04.2013
- Deadline for registration 01.05.2013
- **Workshop** **15.05.2013 - 17.05.2013**

## ABSTRACT SUBMISSION AND REGISTRATION

Abstracts (in word format) not exceeding 400 words, for presentations and posters, are to be submitted by email to the JRC contact persons. After the workshop a European Commission JRC scientific report with Workshop Proceedings will be published. The registration will be finalized via a form which will be obtained from JRC contact persons. The number of participants is limited and preference will be given participants who submit an abstract or participants from target countries.

## CONTACTS

The workshop is advertised on the following EC web-page: <http://ec.europa.eu/dgs/jrc/index.cfm?id=3080>

Direct link to the information and grant application: <http://ec.europa.eu/dgs/jrc/downloads/enlargement/eia2013/2013-iet-a-04.pdf>

**Applications for the grants should be sent to:**

Jrc-enlargement@ec.europa.eu

with the subject: **2013-IET-A-04**

The application should include a CV and a motivation letter. These applications will be redirected to the JRC contact persons for review.

**JRC contacts (Abstract submission, Registration):**

yalcinkaya.t@gmail.com or tuncay.yalcinkaya@ec.europa.eu  
karl-fredrik.nilsson@jrc.nl

**TOBB Economy and Technology University contacts**

cihantekoglu@etu.edu.tr & eeoren@etu.edu.tr

## ACCOMMODATION

The grant-holders will stay at the workshop hotel which will be arranged by the JRC contact person. Organizers from the TOBB Economy and Technology University could help and advise the other participants with the other accommodation options. Participants willing to stay in the hotels could easily reserve high quality hotels in the city center of Antalya via internet as well.

## SOCIAL PROGRAMME

A visit to the ancient region of Antalya, **Perge** and **Aspendos**, will be arranged on the third day of the workshop on 17.05.2013. The cost of the regarding trip will not be covered from the grant.



Please contact organizers for the additional information.

