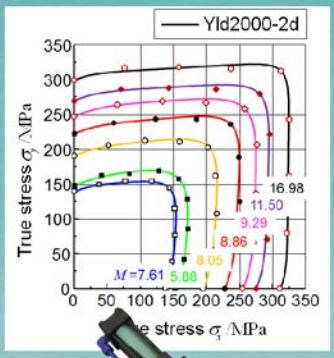
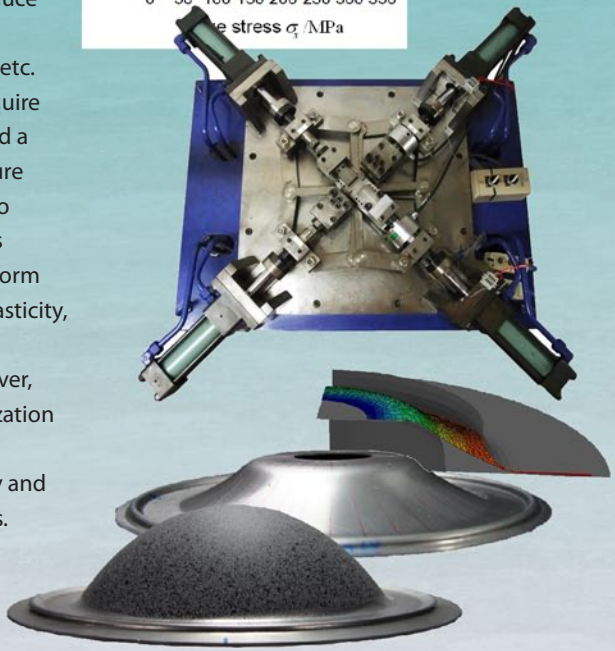
# International Seminar on Metal Plasticity

Monday 19 June 2017
Venue: Sapienza - Università di Roma, Rome, Italy

## Aims and scope:

Plasticity is involved in many industrial engineering applications; nonetheless, accurate description of the plastic material behavior of metals is still a challenge for engineers and researchers. Finite Element Analysis is commonly used to study plasticity, however, in order to have reliable predictions, advanced constitutive models are required to reproduce the complexity of different phenomena including hardening, anisotropy, damage, etc. Such advanced plasticity models often require a dedicated numerical implementation and a complex experimental calibration procedure which sometimes limits their application to the academic environment. The aim of this international seminar is to promote a platform for people working in the field of metal plasticity, to discuss the state-of-the-art, the current research and future developments. Moreover, the intent is to strengthen the cross-fertilization between theoretical material modelling, computational and experimental plasticity and the development of industrial applications.



**Seminar chairmen:**

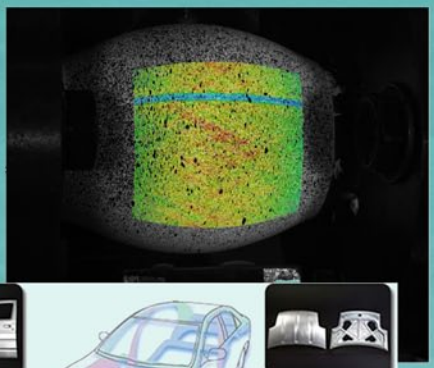
**Dr. Marco Rossi** - Università Politecnica delle Marche, Italy
**Dr. Sam Coppieters** - KU Leuven, Belgium
**Dr. Luca Cortese** - Sapienza Università di Roma, Italy

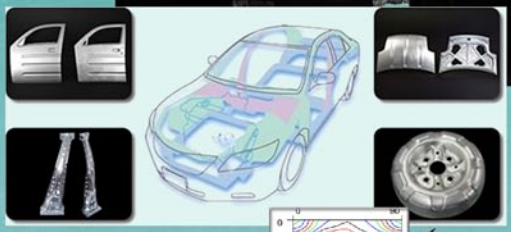
## Course on Numerical Implementation of Plasticity Models (Optional)

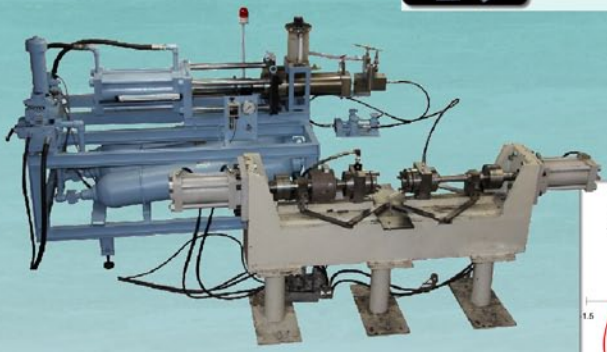
**Tuesday 20 June 2017 at the conference venue**

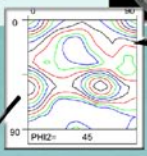
## Who should attend:

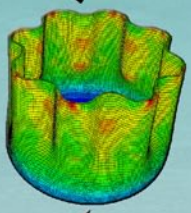
The international seminar is aimed at engineers, researchers and scientists working in the field of metal plasticity, both in academia and industry. It will offer the opportunity to listen, confer and share ideas with internationally recognized scientists and industrial representatives. Young researchers and PhD students are also welcome. A specific optional course on numerical methods in plasticity is included in the program.

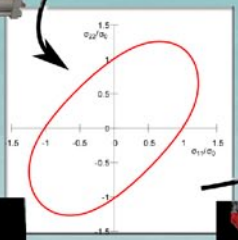


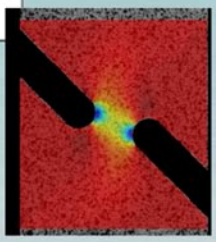











## ACCOMPANYING COURSE ON NUMERICAL IMPLEMENTATION OF PLASTICITY MODELS

### Tuesday 20 June - 9:30 to 13:30 at the conference venue

Dealing with advanced plasticity models, one of the difficulites for newcomers to the field is the necessity of implementing them into numerical procedures such as FEM or inverse method algorithms. In this course, the fundamentals of numerical implementation of plasticity models will be treated focusing on practical aspects illustrated by examples. In particular, the covered topics will be: how to compute the stress from the strain increment, the main algorithms that can be exploited (radial return, backward Euler, direct methods, etc.), the use of subroutine in FEM and inverse methods. A basic knowledge of plasticity is recommended although not strictly necessary.

# Programme
## Monday 19 June 2017

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|---|---|
| **9:00 - 9:30** | **Registration and coffee** |
| **9:30 - 10:15** | **Prof. Frédéric Barlat**<br>POSTECH, Pohang, Korea<br>Theoretical Modelling of Metal Plasticity |
| **10:15 - 11:00** | **Prof. Toshihiko Kuwabara**<br>Tokyo University of Agriculture and Technology<br>Advanced Material Testing Methods for Enhancing the Accuracy of Metal Plasticity Models |
| **11:00 - 11:45** | **Prof. Fabrice Pierron**<br>University of Southampton<br>Image-based inverse identification for plasticity models |
| **11:45 - 12:30** | **Dr. Philip Eyckens**<br>KU Leuven<br>Microstructure-based Plasticity Models |
| **12:30 - 14:00** | **Lunch, exhibition** |
| **14:00 - 14:45** | **Prof. Nicola Bonora**<br>University of Cassino<br>Ductile Damage Characterization and Modelling in Metal Plasticity |
| **14:45 - 15:30** | **Dr. Fabio D'Aiuto**<br>Fiat Chrysler Automobiles<br>Advanced Materials in Automotive Industry |
| **15:30 - 16:15** | **Dr. Steven Cooreman**<br>ArcelorMittal Global R&D Gent/OCAS NV<br>Modelling of plastic material behavior in line pipe |
| **16:15 - 16:45** | **Coffee break** |
| **16:45 - 17:30** | **Open discussion with the speakers and networking** |

## Venue information

The department of mechanical engineering of Sapienza - University of Rome is located in central Rome, 15 min walking or at one metro stop from main Termini Station. The main entrance is just alongside the church of San Pietro in Vincoli where the famous Michelangelo's Moses is situated.

### Delegate fees

| | Regular | Student |
|---|---|---|
| Seminar | 150 € | 100 € |
| Optional Course | 80 € | 50 € |
| Seminar + Course | 210 € | 130 € |

**For further information please visit**

**http://www.bssm.org/MetalPlasticitySeminar**