UME FACULTY

Aiming at a unique diversity of teaching and research training, the organisation of the ROSE, REM and WRR Programmes is based on a relatively short permanence of scholars with extremely high qualification. Indeed, all lecturers are internationally recognised experts in their field, coming from a number of distinguished institutions.

Director
G.M. Calvi

Emeritus Director
M.J.N. Priestley

ROSE FACULTY

N. Abrahamson
S. Akkar
R.J. Archuleta
F. Auricchio
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H. Crowley
M Cubrinovski
A. Dazio
A. Der Kiureghian
R. DesRoches
A. Elgamal
A.Y. Elghazouli
A. Elnashai
M. Erdik
E. Faccioli
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G.L. Fenves
A. Filiatrault
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P. Gamba
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P. Gülkan
R. Hermann
T.J.R. Hughes
H. Igel
E. Kausel
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C.G. Lai
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A. Pavese
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R. Pinho
P.E. Pinto
C. Prato
J.H. Prevost
G. A. Rassati
E.M. Rathje
A. Reali
J. Restrepo
G. Rix
C. Scholz
D. Slejko
E. Spacone
J.F. Stanton
J.P. Stewart
H. Sucuoglu
T. Sullivan
J. Swanson
T. Triantafillou
G. Valensise
S. Winterstein

REM/WRR FACULTY

B.B. Basbug-Erkan
G. Boni
A. Borio di Tigliole
C. Burton
M. Cagnazzo
P. Calvi-Parisetti
G. Castellano
M. De Clerck
F. Dell'Acqua
K. Demeter
R. Eguchi
E. Ferrero
S. Figini
L. Garrido
S. Hochrainer-Stigler
G. Holland
D. Lallemant
F. Laurini
A. Loretti
R. Mechler
A. Mira
A. Monti
M. Oborne
Y. Okuyama
A. Parodi
F. Perugia
M. Regester
B. Reynolds
R. Rudari
J. Schneider
D. Stephenson
A. Taramelli
E. Todini
K. Verosub
P.L. Vidale
R. Vitolo
B. Yekeler
B. Youngman
S. Zatti

IUSS-Pavia is the last step of a long lasting higher education process started on 825 when King Lotharius appointed Pavia, the ancient capital of the Lombard kingdom, as the site for higher education of his kingdom. This process went through the foundation in 1361 by Emperor Charles IV of the Studium Generale later on named University of Pavia. The first Colleges for university students were established in the 15th and 16th centuries. They are now 15 offering, to the almost 2.000 students, a unique opportunity of study and cultural enrichment in a multidisciplinary and multiethnic environment. Through the centuries the University of Pavia became one of the leading institutions in Europe.

IUSS fulfils, since 1997, an advanced teaching and research model successfully implemented by other prestigious institutions in Italy, like Scuola Normale Superiore and Scuola Sant'Anna in Pisa. Due to the completeness of its education and training fields, which allows a strong interdisciplinary approach, the mission of IUSS is to contribute to the growth of a small number of selected students by offering them, at any step of their higher education, qualified programs enhancing their capabilities and knowledge. The Institute is also committed to scientific progress by preparing young researchers and developing scientific research programmes.

UME School
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Education and Culture

Erasmus Mundus

The European Commission has approved and financed the Master on Earthquake Engineering and Engineering Seismology (MEEES), coordinated by UME School and featuring also the participation of University of Grenoble Joseph Fourier (France), University of Patras (Greece) and Middle East Technical University (Turkey). This Master aims to enhance quality in European higher education and to promote intercultural understanding through co-operation with third countries. A number of scholarships are available for both non-European and European students. Interested applicants are invited to visit the MEEES website (**www.meees.org**) for detailed information and instructions on financial conditions and application procedure.

Design Eucentre 2014 - **Pavia, Italy**

IUSS Sapere Aude
Istituto Universitario di Studi Superiori Pavia

CAR - Collegio Cardinale Agostino Riboldi

Università degli Studi di Pavia

The Fourteenth International ROSE Seminar

and

The Second International UME School Seminar

Collegio Cardinale Agostino Riboldi

Pavia, Italy
15-16 May 2014

UME Graduate School
understanding and managing extremes

Member of PAVIA RISK CENTRE

THE UME SCHOOL

The postgraduate school in Understanding and Managing Extremes (UME) is a new exciting development of IUSS-Pavia (Institute for Advanced Study of Pavia, **www.iusspavia.it**), a higher education institution in Italy that offers international advanced postgraduate programmes (Masters and Doctorate). Innovative, internationally planned, open minded, grown on the traditionally fertile soil of the University of Pavia, and based on a system of Colleges unique in Italy, IUSS prepares brilliant individuals to take on the most challenging and demanding public and private positions in contemporary Italy, Europe and the rest of the world. In this framework, the UME School offers graduate programmes geared towards the evaluation of uncertainties, risk mitigation and emergency management. The key objective is to provide a system within which Master and Doctoral candidates can study, understand and deal with extreme events. The UME programmes currently address three main areas:

- **Disaster risk assessment**, focusing mainly on natural hazards such as earthquakes, hurricanes, fires, landslides and floods (with possible extensions to the topics of climatology, desertification, human-made and technological risks, etc.).
- **Extreme situation management**, which includes topics of statistics and probability, law, economics, resource management, finance, insurance, sociology, ethics, psychology and medicine.
- **Engineering for risk mitigation**, which includes topics on engineering to increase the capacity of buildings and infrastructures to withstand the demands from extreme events.

At the UME School, each course is intensively taught in a period of one to four weeks, during which the respective lecturer is able to fully dedicate his/her time exclusively to the scholastic activities at the school, thus ensuring teaching and research training at the highest possible level of quality. All of the above endows a truly unique character to the UME School, be it for its fully international nature or for its innovative organisation in education and research training.
Currently the UME School runs Master and Doctoral Programmes in Earthquake Engineering and Engineering Seismology (ROSE), Risk and Emergency Management (REM), and the Doctoral Programme in Weather Related Risk (WRR).

The ROSE Programme provides higher-level education in the field of earthquake engineering, offering a number of courses covering applied mechanics, structural engineering, earthquake engineering, and engineering seismology. In addition to the PhD Degree, the programme offers Master Degrees in earthquake engineering and engineering seismology with (see the Erasmus Mundus paragraph overleaf) and without mobility. The REM Master and PhD Programme aims to train graduates and professionals in the assessment, mitigation and management of extreme events (both before and after they occur), with a primary focus on those arising from natural hazards and a secondary focus on human-made, technological and biomedical risk. The WRR Doctoral Programme covers the domain of risk linked to hydro-meteorological extremes and is run in collaboration with CIMA Research Foundation located at the Savona campus of the University of Genoa.

INTERNATIONAL ROSE AND UME SCHOOL SEMINARS

As a part of the School's activities, an International Seminar is organised every year, to provide Master and PhD students with an opportunity to present and discuss their research work to an audience of international experts. In addition to standard presentations on research work carried out within the Programmes of the School, the annual Seminar features also the tradition of inviting a prominent scientist to deliver a keynote lecture on a given contemporary and highly relevant topic in the field of Earthquake Engineering and Engineering Seismology. At this year's event, the Keynote Lecture entitled *"Nonlinear site response and its implementation in PSHA"* will be delivered by Professor Jonathan P. Stewart from University of California, Los Angeles, USA.

ATTENDING THE EVENT

In addition to UME faculty and students, a maximum of 50 external participants may also be accepted. Therefore, professionals and researchers worldwide are encouraged to take part in the event. A 160€ fee is required from external attendees, to cover the cost of coffee/lunch breaks and seminar dinner. Special financial conditions are in place for external university researchers or students, to whom a fee of 120€ is usually requested. Those who wish to attend the Seminar are kindly invited to fill in and submit a registration form to the UME School Secretariat. If you need assistance of any kind (registration form, accommodation, travelling directions, etc.), please do not hesitate to contact our staff at **secretariat@umeschool.it**. You may also refer to the UME website (**www.umeschool.it**) for further information on all UME School activities.

VENUE

The UME School is located at the European Centre for Training and Research in Earthquake Engineering (EUCENTRE, **www.eucentre.it**), in Pavia, a historical town in the North of Italy (35km from Milan), full of University tradition. The Seminar itself will take place at the Collegio Cardinale Agostino Riboldi (**www.carcollege.it**), a landmark structure dating back to the second half of the seventeenth century, purposely refurbished to serve as an international hosting facility for postgraduate students and visiting scholars working in the field of natural risk mitigation. It is located in the city centre, in Via Luigi Porta, 10.

POST-SEMINAR ACTIVITY

On Saturday, May 17, a technical visit to the Vajont dam is organised thanks to the collaboration of ENEL and the Vajont Foundation (**http://www.fondazionevajont.org**). Interested participants should contact the UME Secretariat for detailed information about the visit.
In 1963 a landslide from Monte Toc occurred into the reservoir of Europe's highest dam and caused a giant flood wave that destroyed Longarone and other villages, claiming over 2,000 lives. The overflow of the dam was due to the geological instability of Monte Toc being ignored. Warning signs and negative appraisals during the early stages of filling were disregarded and the attempt to safely control the landslide into the lake created a 200-metre tall wave that caused massive flooding and destruction of the Piave valley below, wiping completely out several villages.

SEMINAR PROGRAMME

Thursday, 15th May

13.00 - 14.30 Welcome lunch and registration

14.30 - 16.15 **Session 1 - Chairman: R. Pinho**

Seismic Analysis of Rigid vs. Flexible Steel Tanks
D. Beilic[2], R. Nascimbene
Experimental and Numerical Behavior Assessment of Rubberized Concrete Filled Steel Tube
Y. Jiang[2], J.M. Castro, R. Monteiro
FE Modelling of RC Walls - How Reliable are Strain Predictions?
D. Tarquini[2], J. Almeida, K. Beyer
A Parametric Investigation into the Seismic Behaviour of Window Glazing Systems
K. Sassun[2], A. Filiatrault, T. Sullivan

16.15 - 16.45 *Coffee Break*

16.45 - 18.00 **Session 2 - Chairman: P. Labbé**

Development and Validation of an Integrated Probabilistic Risk Assessment for Turkey
S. Özcebe[1], H. Crowley, V. Silva
Accounting for Joint Typology in the Displacement-based Design of Steel Moment-Resisting Frames Structures
A.R. Roldan Abellan[1], T. Sullivan, G. Della Corte
Displacement-based Parametric Study on the Seismic Response of Gravity Earth Retaining Walls
M.G. Deyanova[1], C.G. Lai, M. Martinelli

19.30 - 23.30 *Seminar Dinner*

Friday, 16th May

09.00 - 11.00 **Session 3 - Chairman: F. Cotton**

Comparative Numerical Dynamic Analyses of Earthquake Induced Landslides
D. Tonoli[2], E. Faccioli, A. Callerio
Seismic Soil Amplification of Cohesionless Soils and Comparison with GMPE and Code Values
M. Morosi[1], P. Bazzurro, F. Pelli
Effects on Building Portfolio Losses of Modelling Epistemic Uncertainty in Seismic Hazard Estimates
S.R. Kotha[2], P. Bazzurro, M. Pagani
Does VPSHA Improve the Accuracy of PBEE-based Building Response Estimates?
M. Kohrangi[1], P. Bazzurro

11.00 - 11.30 *Coffee Break*

11.30 - 13.00 **Session 4 - Chairman: K. Beyer**

Nonlinear Macroelement Modelling of Experimental Tests on Masonry Buildings Specimens with Rigid Diaphragms
M. Mandirola[2], A. Galasco, A. Penna, G. Magenes
Seismic Assessment of Existing Masonry Buildings Accounting for Limited Structural Knowledge by Bayesian Updating Techniques
S. Bracchi[2], M. Rota, A. Penna, G. Magenes
Experimental and Analytical Assessment of the 3D Response of Concave Surface Sliders (CSS) Devices
M. Furinghetti[1], A. Pavese, C. Casarotti

13.00 - 14.30 *Lunch break*

14.30 - 16.30 **Session 5 - Chairman: G.M. Calvi**

Keynote lecture - Nonlinear site response and its implementation in PSHA
J.P. Stewart

Overview of 2013-2014 PaRC Activities
Graduation Ceremony
ROSE Prize 2014

[1] PhD Student, [2] MSc Student