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

ROSE FACULTY

N. Abrahamson
S. Akkar
R.J. Archuleta
F. Auricchio
P. Bazzurro
J. Berrill
K. Beyer
J.J. Bommer
D.M. Boore
R. Boroschek
F. Brezzi
A. Carr
C. Christopoulos
M. Cocco
M.P. Collins
J. Conte
H. Crowley
M. Cubrinovski
A. Dazio
A. Der Kiureghian
R. DesRoches
A. Elgamal
A.Y. Elghazouli
A. Elnashai
M. Erdik
E. Faccioli
M.N. Fardis
G.L. Fenves
A. Filiatrault
P. Franchin
P. Gamba
M.C. Griffith
P. Gülkan
R. Hermann
T.J.R. Hughes
H. Igel
E. Kausel
E. Kavazanjian
K. Kawashima
M.J. Kowalsky
S.L. Kramer
C.G. Lai
R. Leon
R. Ley-Borrás
C. Lovadina
R. Madariaga
G. Magenes
E. Miranda
G. Monti
F. Naeim
M. Nakashima
S. Nielsen
S. Otani
M. Pagani
S. Pampanin
R. Paolucci
A.S. Papageorgiou
A. Pavese
A. Pecker
M. Pender
J. Pettinga
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
S. Sritharan
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 Tgliole
C. Burton
M. Cagnazzo
P. Calvi-Parisetti
G. Castellano
R. Chiarelli
M. De Clerck
F. Dell'Acqua
K. Demeter
G. De Siervo
R. Eguchi
E. Ferrero
S. Figini
L. Garrido
S. Hochrainer-Stigler
G. Holland
D. Lallemant
F. Laurini
A. Loretti
R. Mechler
R. Menezes
A. Mira
A. Monti
M. Oborne
Y. Okuyama
A. Parodi
F. Perugia
M. Regester
B. Reynolds
A. Rose
R. Rudari
J. Schneider
L. Spencer
D. Stephenson
C. Tagliapietra
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 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 that of contributing 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.

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Education and Culture

Erasmus Mundus

The European Commission has approved and financed within the Erasmus Mundus II the Masters 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), which 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 2015 - **Pavia, Italy**

IUSS Sapere Aude
Istituto Universitario di Studi Superiori Pavia

CAR - Collegio Cardinale Agostino Riboldi

Università degli Studi di Pavia

The First International Nigel Priestley Seminar

Collegio Cardinale Agostino Riboldi

Pavia, Italy
14-15 May 2015

UME Graduate School
understanding and managing extremes

EUCENTRE
European Centre for Training and Research in Earthquake Engineering

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 Masters 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 infrastructure 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 Masters 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.

From this year, in its 15th edition, the traditional ROSE and UME School Seminar changes its name to "Nigel Priestley International Seminar," in honour of Prof. Nigel Priestley, who was co-founder and Emeritus Director of the ROSE School in 2001.

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 address entitled *"Simplified Seismic Evaluation of Older Concrete Buildings for Collapse Potential"* will be delivered by William T. Holmes, Structural Engineer and Executive Principal of Rutherford & Chekene, USA.

ATTENDING THE EVENT

In addition to UME faculty and students, a maximum of 50 external participants may also be accepted, for which professionals and researchers worldwide are encouraged to take part in the event. A 150€ fee is required from external attendees, to cover for 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 100€ is usually requested. Those who wish to attend the Seminar are kindly invited to compile and submit a registration form to the UME School Secretariat, at the address given overleaf.
If you need assistance of any kind (registration form, accommodation, travelling directions, etc.), please do not hesitate in contacting 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 Riboldi (**www.collegioriboldi.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 centre of Pavia, in Via Luigi Porta, 10.

SEMINAR PROGRAMME

Thursday, 14th May

13.30 - 14.00 Registration
14.00 - 16.00 Introduction

Session 1 - Chairman: J. Dai

Physically-based cyclic tensile model for reinforced concrete membrane elements
A. Kagermanov[1], P. Ceresa
Simplified procedure for the seismic assessment of precast RC industrial buildings
M. Deyanova[1], S. Pampanin, R. Nascimbene
Progressive Collapse Fragility of RC Frame Structures
D. Cicola[2], R. Nascimbene, E. Brunesi
Damage assessment in buildings affected by subsidence using SAR data and Interferometric Stacking Techniques
V. Cerchiello[2], F. Dell'Acqua, P. Pasquali

16.00 - 16.30 *Coffee break*

16.30 - 18.00 **Session 2 - Chairman: R. Ley-Borrás**

Displacement-based assessment of reinforced concrete bridges
M. Cademartori[2], T.J. Sullivan, D. Cardone
A Holistic Seismic Risk Scheme using Classical Fuzzy Methods
J.R. Gonzalez Cardenas[1], A. Nebot, F. Mugica, H. Crowley
The Context, Capacity and Performance model of Disaster Risk Reduction in Local Government
B. Beccari[1]

19.30 - 23.30 *Seminar Dinner*

Friday, 15th May

09.30 - 11.00 **Session 3 - Chairman: H. Sucuoğlu**

Predictive Power of Seismic Networks for Parametric Securitization and Risk Transfer: the Case Study of Istanbul
S. Pucciano[2], P. Bazzurro, G. Franco
Development of Seismic Functionality Fragilities for Rooms in a Hospital Building
M.J. Barrera Gutierrez de Piñeres[2], A. Filiatrault, T.J. Sullivan
State-dependent analytical fragility functions of underground tunnels
G. Andreotti[1], C.G. Lai

11.00 - 11.30 *Coffee break*

11.30 - 13.00 **Session 4 - Chairman: R. Finch**

A procedure for comparing PSHA results with historical macroseismic observations
A. Rosti[1], M. Rota, A. Penna, G. Magenes
A Proposal for the Interpretation of the in-situ Shear Strength Index Test for Brick Masonry
A. Rossi[2], G. Magenes, F. Graziotti
A Contribution Towards the Non-linear Modelling of Unreinforced Brick Masonry Building
U. Tomassetti[2], G. Magenes, A. Penna, F. Graziotti

13.00 - 14.30 *Lunch break*

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

Keynote lecture – Simplified Seismic Evaluation of Older Concrete Buildings for Collapse Potential
W.T. Holmes

Overview of 2014-2015 Eucentre and UME Activities
Graduation Ceremony

[1] PhD Student, [2] MSc Student