• ROSE FACULTY

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

Director
G.M. Calvi

Emeritus Director
M.J.N. Priestley

Teaching Body

N. Abrahamson
S. Akkar
R. Archuleta
F. Auricchio
K. Beyer
J. Berrill
J.J. Bommer
D.M. Boore
R. Boroschek
F. Brezzi
A. Carr
M. Cocco
M.P. Collins
J. Conte
C. Christopoulos
H. Crowley
M Cubrinowski
A. Dazio
A. Der Kiureghian
R. DesRoches
A. Elghazouli
A. Elnashai
M. Erdik
E. Faccioli
M.N. Fardis
G.L. Fenves
A. Filiatrault
P. Gamba
M.C. Griffith
P. Gülkan
R. Herrmann
T.J.R. Hughes
H. Igel
E. Kausel
E. Kavazanjian
K. Kawashima
M.J. Kowalsky
S. Kramer
C.G. Lai
R. Leon
C. Lovadina
R. Madariaga
G. Magenes
E. Miranda
G. Monti
F. Naeim
M. Nakashima
S. Nielsen
S. Otani
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. Rassati
E. Rathje
A. Reali
J. Restrepo
G. Rix
C. Scholz
D. Slejko
E. Spacone
J. Stanton
J.P. Stewart
H. Sucuoglu
T. Sullivan
J. Swanson
T. Triantafillou
G. Valensise
K. Wilmanski

The 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 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 the Scuola Normale Superiore and the 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 programs.

ROSE **SCHOOL**
c/o EUCENTRE
Via Ferrata, 1 - 27100, Pavia - Italy
Tel. (+39) 0382.516952 - Fax (+39) 0382.529131
E-mail: secretariat@roseschool.it - Website: www.roseschool.it

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 the ROSE School and featuring also the participation of the University of Grenoble Joseph Fourier (France), the University of Patras (Greece) and the 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 relatively large number of scholarships are available for both non-European as well as European students. Interested applicants are invited to visit the MEEES website (www.meees.org) for detailed information and instructions on financial conditions and application procedures.

Design Eucentre - Pavia Italy

Università degli Studi di Pavia

CAR - Collegio Cardinale Riboldi

IUSS Sapere Aude
Istituto Universitario di Studi Superiori Pavia

The Eleventh International ROSE School Seminar

Collegio Cardinale Riboldi
Pavia, Italy
19-20 May 2011

ROSE SCHOOL

Centre for Post-Graduate Training and Research in Earthquake Engineering & Engineering Seismology

• T E ROSE SC OOL

The Centre for Postgraduate Training and Research in Earthquake Engineering and Engineering Seismology (ROSE School) is part of the Institute for Advanced Study of Pavia (IUSS: Istituto Universitario di Studi Superiori), 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, the IUSS prepares brilliant individuals to take on the most challenging and demanding public and private posts in contemporary Italy, Europe, the Mediterranean area and the rest of the world.

The ROSE School provides therefore higher-level education in the field of earthquake engineering, offering a number of courses covering applied mechanics, structural engineering, earthquake engineering, engineering seismology and soil dynamics, with emphasis on both theoretical background and design considerations. The MSc and PhD degrees are jointly awarded by the IUSS and the University of Pavia. Each course is intensively taught in a period of three to five weeks, during which the respective lecturer is able to fully dedicate his/her time and efforts exclusively to the scholastic activities at the school, thus ensuring teaching and research training at the highest possible levels of quality. All of the above endows a truly unique character to the ROSE School, be it for its fully international nature or for its innovative organisation in education and research training in the field of Earthquake Engineering.

• TER AT O AL ROSE SC OOL SE ARS

As a part of the ROSE programme, an International seminar is organised every year, to provide the School 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 at the School, the annual Seminars feature 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. At this year's event, such keynote address will be delivered by Professor Paolo Emilio Pinto, University of Rome 7La Sapienza7, with the title 7Probabilistic Seismic Assessment of Buildings in Practice8.

It is also foreseen that contributions to the seminar will be published, after a standard review process, in a special issue of the Journal of Earthquake Engineering, which will be distributed to all participants and journal subscribers early 2012. Copies of the JEE Special Issues containing the proceedings of previous editions of this annual Seminar are available from the ROSE School Secretariat, on request.

• ATTE D T E E E T

In addition to ROSE faculty and students, a maximum of 50 external participants may also be accepted, for which reason professionals and researchers worldwide are encouraged to take part in the event. A 160€ fee is required from external attendees, to cover for the cost of coffee/lunch breaks, seminar dinner and proceedings. Special financial conditions are, however, in place for University researchers or students, to whom a fee of not more than 120€ is usually requested. Those who wish to attend the Seminar are kindly invited to compile and submit the registration form to the ROSE 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@roseschool.it**. ou may also refer to the ROSE website for further information on all ROSE School activities.

• E UE

The ROSE 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 (35 km from Milan), full of University tradition and fame. The Seminar itself will take place at the Collegio Riboldi, 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.

• RE SE AR S EC AL SESS O

Aim of the special session on the Christchurch and Tohoku earthquakes is on one side to provide an overview on what happened during the two earthquakes on the other side to understand and to discuss what the earthquake engineering community has learned or will learn from both events, as well as which new challenges they pose. Guest Speakers will be Prof. Akenori Shibata, Tohoku University Prof. Misko Cubrinowski, University of Canterbury Prof. Jason Ingham, University of Auckland, Dr. Damian Grant, Arup New ork and Dr. Agostino Miozzo, European External Action Service

• OST SE AR ACT T ES

On Saturday May 21 a technical visit of the new Gotthard Base Tunnel is organised (**www.alptransit.ch/en**). With a length of 57 km crossing the Alps, it is the longest railway tunnel in the world. The excavation is almost totally completed while operation with start in 2017. The visit will provides insight into the challenges faced by engineers and miners to complete this important structure that will bring north and south Europe closer. The south portal of the tunnel is located in Bodio, Switzerland, about two hours driving from Pavia. Transportation will be provided. A detailed program of the tour can be found at both the ROSE School web site (**www.roseschool.it**) and the Eucentre web site (**www.eucentre.it**).

• RO RA E OF T E SE AR

Thursday th ay

10.00 – 13.00	**Special Session on the Christchurch and Tohoku earthquakes**
13.00 – 14.30	Welcome lunch and registration
14.30 – 16.00	**Session 1 - Chairman: A Da. io**
	Seismic behaviour of structures with passive added damping devices A. Lago[1], T. Sullivan, G.M. Calvi
	Friction pendulum system: effects of physical modeling assumptions on the response of multistory buildings E. Fag [1], G.M. Calvi, M. Moratti, R. Nascimbene
	Strain life analysis at low cycle fatigue on concentrically braced steel structures with RHS shape braces S. Santagati[3], D. Bolognini, R. Nascimbene, K. Wijesundara
16.00 – 16.30	*Coffee break*
16.30 – 18.00	**Session 2 - Chairman: agani**
	The earthquake source in numerical modeling of seismic wave propagation in heterogeneous earth media C. Smerzini[2], R. Paolucci
	Analysis of basin induced surface waves J.R. Abraham[1], A. Papageorgiou, C.G. Lai
	Ranking and selection of appropriate ground motion models for seismic hazard analysis in low to moderate seismicity countries H. Oksuz[3], C. Beauval, F. Cotton, S. Drouet
19.30 – 23:30	*ROSE Seminar Dinner*

Friday th ay

09.00 – 11.00	**Session 3 - Chairman: agenes**
	Performance-based seismic design of maritime port structures A. Calabrese[1], C.G. Lai
	Definition of fragility curves for pile supported wharves C. Thomopoulos[3], C.G. Lai
	Seismic assessment of irregular RC structures – Modelling guidelines and seismic code critical review D. Kazantzidou-Firtinidou[3], R. Pinho, R. Sousa
	Development of software and hardware architecture for real-time dynamic hybrid test with substructuring and application to a base isolated structure I. lanese[1], A. Pavese
11.00 – 11.30	*Coffee Break*
11.30 – 13.00	**Session 4 - Chairman: A a, ese**
	The role of spandrel beams in the seismic behaviour of masonry buildings M. Da Par [3], G. Magenes, A. Dazio, A. Penna, M. Rota
	Reliability evaluation of the current approach to seismic assessment of existing masonry buildings in the Italian code M. Tondelli[3], M. Rota, A. Penna, G. Magenes
	Seismic behaviour of clay masonry infills in newly designed RC framed structures S.Hak[1], P. Morandi, G. Magenes, T. Sullivan
13.00 – 14.30	*Lunch break*
14.30 – 16.30	**Session 5 - Chairman: Ca , i**
	Keynote lecture - Probabilistic seismic assessment of buildings in practice Paolo Emilio Pinto
	Overview of 2010-2011 Eucentre Activities
	ROSE/MEEES Graduation Ceremony

[1] PhD Student, [2] PhD Alumnus, [3] MSc Student