

第二届国际短期课程

OpenSees对RC结构的地震分析

有限元理论框架和土木工程应用

时间: 9 am - 5 pm

2017年2月15日 罗马第三大学土木工程学院, 罗马, 意大利 (已结束)

2017年 7月 3-4 日 福州大学土木工程学院, 福州, 中国

2017年 7月 6-7 日 南京工业大学土木工程学院, 南京, 中国

第一届OpenSees(地震工程模拟的开放体系)课程已于意大利罗马第三大学圆满落幕(2016年2月)。第二届将于2017年7月在中国举行。OpenSees主要用于结构和岩土方面的地震反应模拟,可以实现简单的静力线弹性分析,静力非线性分析,截面分析,模态分析,pushover拟动力分析,动力线弹性分析和复杂的动力非线性分析等;还可用于结构和岩土体系在地震作用下的可靠度及灵敏度的分析。OpenSees为开源软件,且源代码公共,便于自由学习和独立程序员修改和扩展(新材料,组件和算法分析)。用户初面OpenSees会因其编程语言复杂而却步。故籍此OpenSees短期课程介绍该有限元理论框架和基本操作,并通过一系列简单的土木工程应用程序加以展示,使TCL / OpenSees中的编程成为可能。

课程

第一天

第一部分 - 有限元理论框架

第二部分 - *OpenSees*应用程序

第二天

OpenSees 强化应用

教师

古泉
(厦门大学)

谷音
(福州大学)

陆新征
(清华大学)

Enrico Spacone
(基耶地-佩斯卡拉大学)

陈力波
(福州大学)

高毅超
(华侨大学)

刘涛
(厦门大学)

夏樟华
(福州大学)

Cristoforo Demartino
(南京工业大学)

Davide Lavorato
(罗马第三大学)

Francesco Marmo
(那不勒斯费德里克二世大学)

Giuseppe Quaranta
(罗马第一大学& 南京工业大学)

合作人员: Giorgia Di Gangi, Concetta Sulpizio, Carlo Rago, Fabiana Riparbelli, Gabriele Fiorentino, Wang Junsong, Wu Yue

科学委员会: Bruno Briseghella教授 (福州大学), Rita Greco教授 (巴里大学), Sashi Kunnath教授 (南京工业大学, 加利福尼亚大学戴维斯分校), Giuseppe Marano教授 (福州大学), Giorgio Monti教授 (EOS, 南京工业大学, 罗马第一大学), Camillo Nuti教授 (罗马第三大学), Ivo Vanzi教授 (基耶地-佩斯卡拉大学), 卓卫东教授 (福州大学), 肖岩教授 (南京工业大学)

热情相邀

注册请发送电子邮件: opensees.eos.course@gmail.com



第二届国际短期课程

OpenSees对RC结构的地震分析

有限元理论框架和土木工程应用

课程安排

第一天

2017年 7月 3日 福州大学土木工程学院，福州，中国

2017年 7月 6日 南京工业大学土木工程学院，南京，中国

Francesco Marmo

(那不勒斯费德里克二世大学)

第一部分 - 有限元理论框架

- RC力学性能
- 建模
- 框架位移
- 框架受力
- 静态数值解
- 动态数值解

Cristoforo Demartino

(南京工业大学)

第二部分 - OpenSees应用程序

- 开源软件及其在研究中的应用
- TCL基础知识（工具命令语言）
- 简单的线性结构（静态）
- 简单的非线性结构（静态）
- 简单的非线性结构（动态）
- 将Matlab©连接到OpenSees

第二天

OpenSees强化应用

2017年 7月 4日 (9 am - 5 pm) 福州大学土木工程学院，福州，中国

Enrico Spacone (基耶地-佩斯卡拉大学)

建立符合意大利建筑和STKO地震风险计算的RC框架代码：OpenSees的革命性可视化工具包

陆新征 (清华大学)

OpenSees在大型结构倒塌仿真中的开发与应用

古泉 (厦门大学)

数值子结构方法 (NSM) 及其OpenSees对大规模非线性结构分析的意义

谷音 (福州大学)

基于OpenSees的饱和土结构动力学相互作用的数值方法研究

刘涛 (厦门大学)

OpenSees-Matlab组合编程在隔震和有限元模型更新中的应用

高毅超 (华侨大学)

OpenSees在土壤结构相互作用问题中的应用

夏樟华 (福州大学)

OpenSees在预制分段混凝土墩抗震性能分析中的应用

陈力波 (福州大学)

非延性钢筋混凝土柱的破坏机理和分析模型

2017年 7月 7日(9 am - 12 am) 南京工业大学土木工程学院，南京，中国

陆新征 (清华大学)

OpenSees在大型结构倒塌仿真中的开发与应用

Cristoforo Demartino (南京工业大学)

OpenSees在竹/木轻型剪力墙中的应用



2nd International Short Course

Seismic Analysis of RC Structures using OpenSees *Finite Element theoretical framework and Civil Engineering applications*

Timetable: 9 am - 5 pm

15 February 2017

Aula Nervi, Dipartimento di Architettura, Università di Roma Tre, Rome, Italy (completed)

3 - 4 July 2017

College of Civil Engineering, Fuzhou University, Fuzhou, China

6 - 7 July 2017

College of Civil Engineering, Nanjing Tech University, Nanjing, China

Following the first (2016) edition, the second edition will take place in February, and July 2017. The course will be held in Italy and China. OpenSees (Open System for Earthquake Engineering Simulations) is an open source software. The source code is public in order to facilitate the free study and the ability of independent programmers to make modifications and extensions (behavior of new materials, components and analysis algorithms). The main difficulties that users usually find during the first approaches with OpenSees are mainly due to the programming language that could appear really complex. The main purpose of this short course is to provide a basic understanding of the finite element theoretical framework and of OpenSees and show through a series of simple civil engineering applications that programming in TCL/OpenSees is possible to everyone.

GENERAL PROGRAM

Day 1

Part I - Finite Element theoretical framework

Part II - OpenSees applications

Day 2

Advanced applications using OpenSees

TEACHERS

Quan Gu
(Xiamen University)

Yin Gu
(Fuzhou University)

Xinzheng Lu
(Tsinghua University)

Enrico Spacone
(University of Chieti - Pescara)

Libo Chen
(Fuzhou University)

Yichao Gao
(Huaqiao University)

Tao Liu
(Xiamen University)

Zhanghua Xia
(Fuzhou University)

Cristoforo Demartino
(Nanjing Tech University)

Davide Lavorato
(University of "Roma Tre")

Francesco Marmo
(University "Federico II")

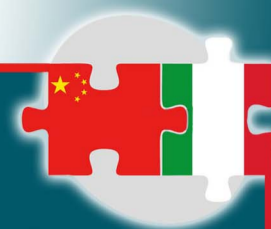
Giuseppe Quaranta
(University "La Sapienza" &
Nanjing Tech University)

Collaborators: Giorgia Di Gangi, Concetta Sulpizio, Carlo Rago, Fabiana Riparbelli, Gabriele Fiorentino, Wang Junsong, Wu Yue

Scientific Committee: prof. Bruno Briseghella (Fuzhou University), prof. Rita Greco (Technical University of Bari), prof. Sashi Kunnath (Nanjing Tech University, UC Davis), prof. Giuseppe Marano (Fuzhou University), prof. Giorgio Monti (EOS, Nanjing Tech University, University of Rome "La Sapienza"), prof. Camillo Nuti (University of "Roma Tre"), prof. Ivo Vanzi (University of "G. d'Annunzio"), prof. Zhuo Weidong (Fuzhou University), prof. Yan Xiao (Nanjing Tech University)

FREE PARTICIPATION

To register send an e-mail to: opensees.eos.course@gmail.com



2nd International Short Course

Seismic Analysis of RC Structures using OpenSees *Finite Element theoretical framework and Civil Engineering applications*

DETAILED PROGRAM

DAY 1

3 July 2017 (9 am - 5 pm) College of Civil Engineering, Fuzhou University, Fuzhou, China

6 July 2017 (9 am - 5 pm) College of Civil Engineering, Nanjing Tech University, Nanjing, China

Francesco Marmo
(University "Federico II")

Part I - Finite Element theoretical framework

- RC mechanical behaviour
- Section modelling
- Displacement based frame element
- Force based frame element
- Static numerical solution
- Dynamic numerical solution

Cristoforo Demartino
(Nanjing Tech University)

Part II - OpenSees applications

- Open-Source software and its use in research
- Basics of TCL (Tool Command Language)
- Simple linear structure (static)
- Simple non-linear structure (static)
- Simple non-linear structure (dynamic)
- Connecting Matlab© to OpenSees.

DAY 2

Advanced application using OpenSees

4 July 2017 (9 am - 5 pm) College of Civil Engineering, Fuzhou University, Fuzhou, China

Enrico Spacone (University of Chieti - Pescara)

Modeling of RC frames for seismic risk calculation of code conforming Italian buildings and STKO: a revolutionary visualization toolkit for OpenSees

Xinzheng Lu (Tsinghua University)

Development and Application of OpenSees for Collapse Simulation of Large-scale Structures

Quan Gu (Xiamen University)

A Numerical substructure Method (NSM) and its OpenSees Implication for Large-Scale Nonlinear Structural Analysis

Yin Gu (Fuzhou University)

Study on numerical method of saturated soil-structure dynamic interaction based on OpenSees

Tao Liu (Xiamen University)

Application of OpenSEES-Matlab combined programming in seismic isolation and finite element model updating

Yichao Gao (Huaqiao University)

The application of OpenSees to the soil-structure interaction problems

Zhanghua Xia (Fuzhou University)

Application of openSees in seismic performance analysis of Precast Segmental Concrete piers

Libo Chen (Fuzhou University)

Failure mechanism and analytical models of non-ductile reinforced concrete columns

7 July 2017 (9 am - 12 am) College of Civil Engineering, Nanjing Tech University, Nanjing, China

Xinzheng Lu (Tsinghua University)

Development and Application of OpenSees for Collapse Simulation of Large-scale Structures

Cristoforo Demartino (Nanjing Tech University)

Modelling of timber and bamboo shear walls in OpenSees