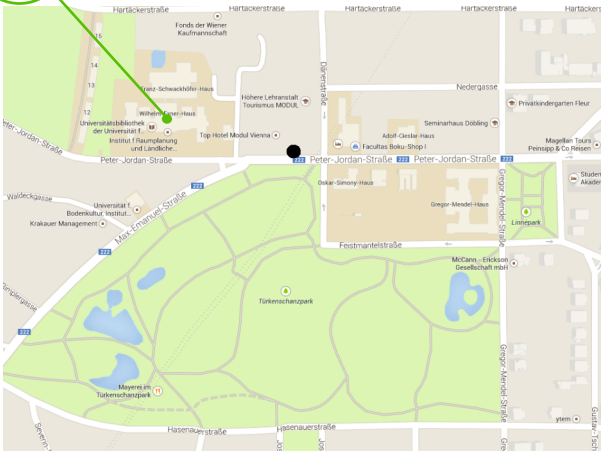
BOKU Map:



● *Autobus Station Dänenstraße (10A, 40A, 37A)*

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Exner Haus

Department of Civil Engineering and Natural Hazards

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University of Natural Resources and Life Sciences, Vienna

Short Course

Advanced Topics in Engineering Mechanics:

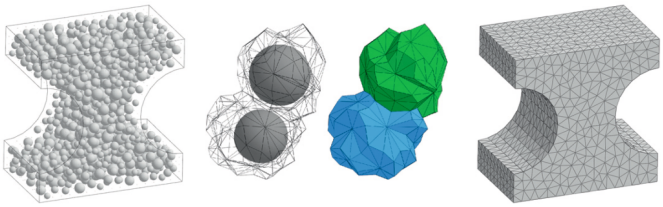
875.011 (2SWS, 3ECTS)

"Multi-Scale and Multi-Phase Modeling of Aging Concrete Structures"

presented by

Assoc. Prof. Dr.

Gianluca Cusatis



July 14 – 18, 2014
BOKU, Vienna

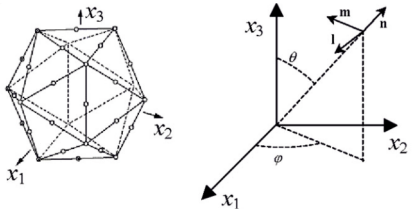
Institute of Structural Engineering

Seminar Purpose and Objectives:

This short course presents in a systematic way microplane and lattice-particle model formulations for the simulation of aging and deterioration of concrete structures with special focus on phenomena like creep, shrinkage and ASR (alkali-silica reaction). The addressed topics are of interest to graduate students, post-doctoral associates, researchers, and professional engineers who need to become proficient with the use of modern, effective and versatile constitutive equations for the simulation of strain-softening and damage in concrete.

Prerequisites:

Prerequisites to attend the course are basic knowledge in continuum mechanics and finite element analysis.



Course's Schedule:

Day 1 (July 14): Constitutive Formulations I;

Day 2 (July 15): Constitutive Formulations II;

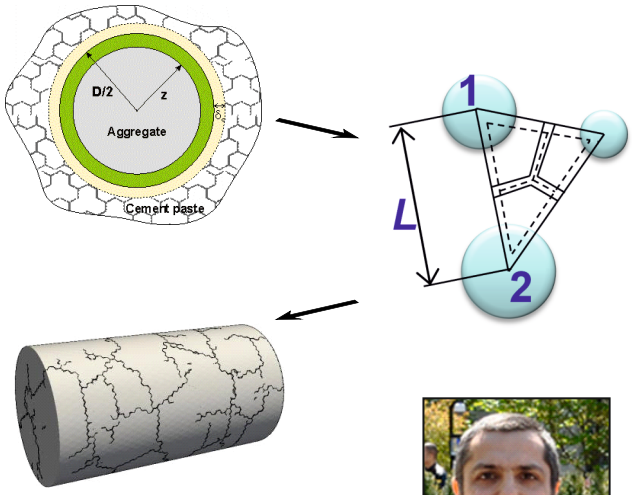
Day 3 (July 16): Hygro-thermal model, transport process & aging;

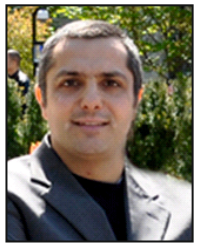
Day 4 (July 17): Application to Creep, Shrinkage and ASR;

Day 5 (July 18): Final Exam.

Day's Schedule:

Unit I:	9^{00}	-	10^{30}
Unit II:	11^{00}	-	12^{30}
Unit II:	13^{30}	-	15^{00}
Unit IV:	15^{30}	-	17^{00}





Assoc. Prof. Dr.
Gianluca Cusatis

Dr Gianluca is a faculty member of the Civil and Environmental Engineering Department at Northwestern University that he joined in August 2011. Previously, he worked at Rensselaer Polytechnic Institute for six years (2005-2011). He teaches undergraduate and graduate courses of the civil engineering curriculum and performs research in the field of Mechanics of Quasi-Brittle Materials.

In the last fifteen years, he has been working in the field of computational and applied mechanics, with emphasis on heterogeneous and quasi-brittle materials, concrete and reinforced concrete modelling. His work on constitutive modelling of concrete especially through the adoption of the so-called Lattice Discrete Particle Model (LDPM), one of the most accurate and reliable approaches to simulate failure of materials experiencing strain-softening, is well known. In addition, his research interests include: micro- and meso-mechanics; multiple scale mechanics; linear and nonlinear fracture mechanics; nonlinear constitutive modelling, concrete creep; rate effect on material strength, moisture and heat transfer, and concrete-steel interface behaviour.

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