

Tutorial Outline and Description:

Supplementary cementitious materials (SCM) and different smart additives are commonly used in concrete practice nowadays. They are introduced into the concrete either blended with the cement or as separate additions. Some have been used in practice for decades others have just recently appeared in the development lab. SCMs with pozzolanic or cementitious properties include silica fume and nano-silica, coal fly ash, ground granulated blast furnace slag, metakaolin, limestone fillers and natural pozzolans. Smart additives include plasticizing, retarding, accelerating, shrinkage-reducing, air- and water-entraining admixtures, and more recently also embedded micro-devices for structural monitoring, phase-changing materials, and additives for self-healing and self-curing of concrete. A significant improvement in concrete quality – not the least durability and sustainability – can be obtained by proper use of these materials along with the proper knowledge on hydration chemistry and microstructural characterization of portland cement with this materials.

8:00-9:45 Maria Juenger
The University of Texas

Subjects:

SCMs and smart admixtures
Characterization of SCMs
Hydration
Microstructure

10:00-11:45 Ole Mejlhede Jensen
Technical University of Denmark

Subjects:

The role of water
Powers model – key parameters
Autogenous deformation
Internal curing

14:00-15:45 Konstantin Kovler
Technion – Israel Institute of Technology

Subjects:

Mechanical properties
Strength
Elastic modulus
Creep
Cracking

16:00-17:45 Nele de Belie
Universiteit Gent, Belgium

Subjects:

Durability
Sulfur attack
Self-healing



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Symposium on:

CONCRETE WITH SMART ADDITIVES AND
SUPPLEMENTARY CEMENTITIOUS MATERIALS

August, 2012 - Cancun, Mexico

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Tutorial Course on: Selected subjects on cement and concrete with Smart Additives and Supplementary Cementitious Materials



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