

## Venue

Nanjing is the capital of China's Jiangsu Province and has played an important role in Chinese history and culture. Nanjing has been the capital of China during several historical periods, and is listed as one of the Four Great Ancient Capitals of China – the other three being: Beijing, Xi'an and Luoyang. Nanjing is also one of the fifteen sub-provincial cities in China's administrative structure, enjoying jurisdictional and economic autonomy.

Nanjing is easily reached internationally by air transport e.g. directly from Frankfurt, Germany or through Beijing. A high speed train at 300 kmph connects Nanjing and Shanghai with a transport time of about 1 h.



*Stone animals guarding the "sacred way" at the UNESCO World Heritage Ming Tomb in Nanjing*

## SBT - SEU - RILEM Doctoral Courses

Jiangsu Academy of Building Science and the College of Materials Science and Engineering of Southeast University are hosting this doctoral course on Cement Hydration and Concrete Durability. The planning of the course is done in cooperation between Jiangsu Academy of Building Science, Southeast University, and The Technical University of Denmark.

## Financial Support by Jiangsu Bote New Materials Co.

Jiangsu Bote New Materials Co. (SBT) is a hi-tech enterprise originating from the Building Material Branch of Jiangsu Academy of Building Science. SBT is specialized in R&D and application of concrete technologies. SBT is the leader in the industry of concrete admixture in China. With the aim of promoting research and teaching in concrete technology SBT provides financially support for the doctoral course.

## Scientific Support by RILEM

RILEM is an international union of experts in construction materials, systems and structures with the aim to promote scientific cooperation. RILEM is scientific sponsor for the doctoral course. All doctoral students registered in the full doctoral course are offered a free 3-year RILEM membership. More information about RILEM can be found at: [www.rilem.net](http://www.rilem.net)



**SBT – SEU– RILEM  
Doctoral Course**

## Cement and Concrete

**A – Cement Hydration  
B – Concrete Durability**

**Nanjing, 25 Aug. - 1 Sept. 2011**

### Lecturers

M. Tange Hasholt, R. Doug Hooton,  
O. Mejlhede Jensen, L.-O. Nilsson,  
K. Scrivener, W. Jason Weiss

### Organized by

Ole Mejlhede Jensen, Wei Sun, Changwen Miao

### Sponsored by

**Jiangsu Academy of Building Science  
Southeast University  
RILEM**

## Scope of Course

The course brings you up-to-date on important areas of cement and concrete technology:

### A – Cement Hydration

Knowledge of the cement hydration process is very important for the understanding of most concrete properties. Cement hydration has been intensively researched for a century, but due to its complexity many challenges still remain. During the last years sophisticated methods for investigation have significantly expanded our knowledge. This enables us to control certain concrete properties.

### B – Concrete Durability

Modern concrete technology has identified a number of damage mechanisms that can take place depending on concrete environment and concrete quality – damage mechanisms which every year necessitate massive investments in rehabilitation and repair. However, constantly ongoing research refines our theoretical knowledge about why deterioration takes place, models for prediction of deterioration are improved, and new measures to prevent deterioration processes appear and extend the service life of concrete structures.

## Course Contents and Schedule

The course consists of connected lectures, written exercises and hands-on laboratory exercises. Social activities during the course are planned to promote a stimulating study atmosphere.

The following subjects are covered in the course:

### A - Cement Hydration (August 25-26)

- Cement manufacture
- Hydrate phases
- Microstructure development
- Hydration kinetics
- Analytical techniques and modeling

### B - Concrete Durability (August 28 – Sept. 1)

- Chloride ingress
- Corrosion
- Frost attack
- Alkali-aggregate reactions
- Sulfate attack
- Standards and specifications

August 27 is a “poster day”. Course participants are encouraged to present their own research topic during a poster presentation.

## Work Load and Study Material

Including the period at SBT and preparatory work before the course the following work load is involved:

A - Cement Hydration: Approximately 27 hours of work corresponding to 1 ECTS.

B - Concrete Durability: Approximately 100 hours corresponding to 3.5 ECTS points.

Poster preparation and presentation: Approximately 40 hours corresponding to 1.5 ECTS points.

Notes will be provided before the course.

## Certificates

Certificates will be issued based on active participation in one or more parts of the course.

## Participants

The participants are expected to have a basic knowledge of concrete technology. All lectures will be given in English.

## Costs

A course fee of EUR 400 will apply for the entire course. Participation in parts of the course at a reduced fee is possible. The participants will be responsible for their own travel costs and insurance.

## Accommodation

During the course, accommodation and meals will be provided by Jiangsu Bote New Materials Co., Ltd., free of charge.

## Further Information and Registration

Applicants should register by July 31, 2011. Single-day participation is possible. Further information will be posted at:

<http://www.rilem.net/calendar.php>

- or you may contact:

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