

Faculty of Engineering Science and Technology  
Department of Structural Engineering



**Nordic mini-seminar: Crack width calculation methods for large concrete structures**

Sponsored by the two Norwegian projects: Ferry-free E39<sup>1</sup> and DaCS<sup>2</sup>

The participants of two ongoing Norwegian research projects, Ferry-free E39<sup>1</sup> and Durable Advanced Concrete Structures (DaCS)<sup>2</sup>, have the pleasure of inviting you to a Nordic mini-seminar within the topic *Crack width calculation methods for large concrete structures* in Oslo, Norway, which is to be hosted by NTNU and Multiconsult ASA in a joint collaboration. One of the ongoing activities related to the aforementioned research projects is the PhD project entitled “*Evaluation and improvement of crack width calculation methods in large concrete structures*” carried out by Reignard Tan.

The seminar will consist of international invited speakers to present keynote lectures within their respective topics, in addition to presentations from experts from Europe. Please find the program enclosed in this document.

**Venue:** Multiconsult ASA, Nedre Skøyen vei 2, 0276 Oslo, Norway.

**Time:** The seminar opens at 11 AM August 29, and closes at 3 PM August 30, 2017.

**Registration:** The deadline for registration is **August 15**. You register by confirming your participation in an e-mail to Reignard Tan at [reignard.tan@multiconsult.no](mailto:reignard.tan@multiconsult.no). The registration fee is NOK 1000,- (includes seminar, seminar dinner, lunch and proceeding). An invoice will be sent after the workshop.

**Dinner:** The dinner will be at a restaurant close to the venue. Please inform about your participation for the dinner and allergies when registering for the workshop.

**Hotel booking:** Scandic Sjølyst Hotel, which is a 5-10 minutes walk from the venue and 3 minutes by train to the city centre. Reserve at <https://www.scandichotels.no/hotell/norge/oslo/scandic-sjolyst> with the booking code **BMUL290817** to book a discounted room from August 29 to August 30 for a price of NOK 1590,-. Note that the discounted price applies if a reservation is made before August 9. After that, other prices may apply.

Sincerely yours,

Professor Terje Kanstad (NTNU), Professor Max Hendriks (NTNU/TU Delft) and PhD candidate Reignard Tan (NTNU/Multiconsult ASA)

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<sup>1</sup> Development of a ferry free coastal high way route (1100 km) funded by the Norwegian Public Roads Administration

<sup>2</sup> Increase knowledge of sustainable and competitive reinforced concrete structures in harsh environments funded by The Research Council of Norway and industrial partners

## PROGRAM

### First day (Moderator Morten Engen):

11:00 Registration

11:30 Lunch

12:30 Opening of the seminar by Prof. Max Hendriks (and practical information by Morten Engen)

12:45 Introduction by Per Horn

13:00 Session 1

- Ravn, U.G., Cowi. – *Crack width verification challenges for large RC structures in practice* (25 min)
- Kleissl, K.C., Cowi – *Crack width verification of large disturbed regions in practice* (25 min)
- Taliano, M., Politecnico di Torino. – *An improvement to Eurocode 2 and fib Model Code 2010 methods for calculating crack width in RC structures* (Keynote, 40 min)

14:30 Break

14:45 Session 2

- Caldentey, A.P., Polytechnic University of Madrid. – *Proposal of new crack width formulas in the Eurocode 2, background, experiments, etc.* (Keynote, 45 min)
- Tan, R., NTNU/Multiconsult ASA. – *Evaluation of current crack width calculation methods according to Eurocode 2 and fib Model Code 2010 and suggestions to improvements* (30 min)
- Johansen, H. and Basteskår, M., Norwegian Public Roads Administration/Concrete Structures AS. – *Calculation of crack widths in RC bridge structures* (15 min)

16:15 Break

16:35 Session 3

- Kaufmann, W., ETH Zürich. – *Crack widths in structural concrete subjected to in-plane shear and normal forces* (Keynote, 55 min)
- Brekke, D.E., Multiconsult ASA. – *Evaluation of crack width calculation methods used in design of offshore concrete structures* (30 min)

18:00 End of the first day presentations

18:30 Dinner

### Second day (Moderator Reignard Tan):

09:00 Session 4

- Schlicke, D., TU Graz. – *Deformation-based crack width control in large restrained concrete members* (Keynote, 55 min)
- Kanstad, T. and Klausen, A., NTNU/SINTEF. – *Early age cracking of concrete members* (30 min)

10:25 Break

10:45 Session 5

- Cervenka, V., Cervenka Consulting. – *Uncertainties in numerical modelling of crack width* (30 min)
- Engen, M. and Hendriks, M., Multiconsult ASA/NTNU/TU Delft. – *The modelling uncertainty of non-linear finite element analyses of large concrete structures* (30 min)
- Zivkovic, J., NTNU – *Cracking of lightweight aggregate concrete beams* (15 min)

12:00 Lunch

13:00 Session 6

- Bisch, P., Egis, Paris. – *Results of the research project CEOS.fr* (Keynote, 55 min)
- Hornbostel, K. and Geiker, M., Norwegian Public Roads Administration/NTNU. – *Durability aspects related to cracking* (15 min)
- Klausen, A., SINTEF. – *Consequences of cracking related to tightness* (15 min)

14:25 Break

14:45 Closing of the seminar by Prof. Terje Kanstad

15:00 End of workshop

## VENUE

The venue is located close to Skøyen train station (3 minutes walk according to Google maps). This train station is approximately a 30 minutes single train ride from Oslo Airport with the Airport Express train.

