



### Report on seismic behaviour of engineered cementitious composite beam-column joints

by Ir. Chong Chee Meng

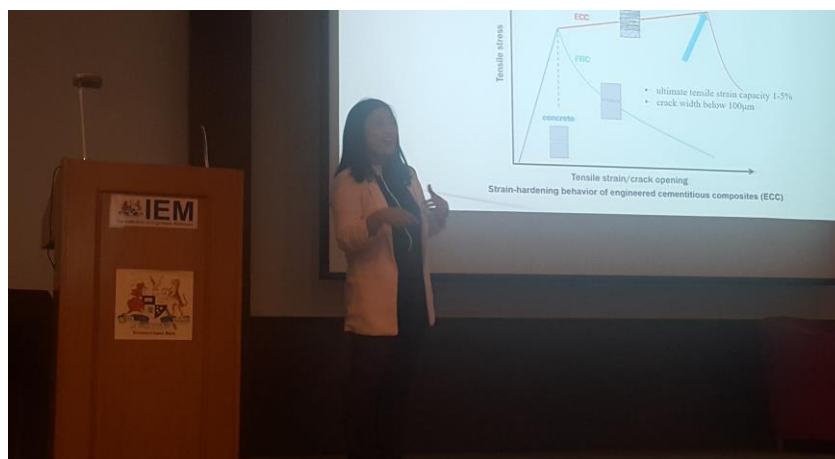
Ir. Chong Chee Meng is currently the Chairman in the Civil and Structural Engineering Technical Division (CSETD).

The Civil and Structural Engineering Technical Division (CSETD) organized an evening talk on 'Seismic behaviour of engineered cementitious composite beam-column joints'. The talk was held on 2<sup>nd</sup> August 2018 at Auditorium Tan Sri Prof Ching Fung Kee, Wisma IEM. The speaker was Dr Lee Siong Wee, who graduated from Nanyang Technological University, Singapore in 2017 with a PhD in structural engineering and materials. Currently she is a senior lecturer in the faculty of civil engineering, UiTM.

This talk was chaired by Ir Dr Ng Soon Ching, the immediate past chairman of CSETD and was attended by 60 participants. The 60 participants included engineers from engineering consultants, contracting firms, government agencies and local authorities as well as faculty members from local institutions of higher learning.

Dr Lee commenced her talk by explaining what is an engineered cementitious composite (ECC). ECC is made up of cement + cement replacement materials, sand, water and fiber. ECC is a very ductile material whereas its tensile ductility is capable of 100 to 500 times tensile strain capacity of normal concrete and fiber reinforced concrete. ECC can be designed for a variety of functionalities such as self-consolidating, self-sensing, self-thermally adapting and self-healing.

Dr Lee reiterated that ECC is an ideal material in seismic design of structures because it can sustain large imposed deformations, has tight crack width control, has compatible deformation between ECC and reinforcement and has high damage tolerance. The usage of ECC also can reduce or eliminate the needs for shear reinforcement.



Dr Lee delivering the talk

Dr Lee also shared with the audience the results of experimental investigations on RC beam-column joints carried out by her. From the experiments, it can be noted that ECC significantly changes brittle joint shear failure mode to ductile beam flexure mode. ECC also managed to slightly increase the load carrying capacity of the beam-column sub-assembly by around 15% despite the elimination of transverse reinforcement in the joint core.

At the end of the talk, there were questions raised by the audience which Dr Lee answered and clarified in more details. At closure of the event, the CSETD chairman, Ir Chong, presented a token of appreciation to Dr Lee.



**Presentation of memento by Ir Chong to Dr Lee**