

## **Testing methods for characterisation of fracture behaviour of fibre-reinforced cement-based composites**

Session organised by Stephen Foster, Viktor Mechtcherine and Giovanni Plizzari.

Fibre-Reinforced Cement-based Composites (FRCC) are characterized by its improved response in tension and shear after cracking, when compared to that of unreinforced concrete. In the case of brittle and quasi-brittle materials, such as concrete, the direct tensile strength is often estimated using an indirect method such as by the modulus of rupture test or split-cylinder test, as direct tensile strength tests can be expensive in that they usually require specialist equipment and can be time consuming in their preparation. Where a greater degree of ductility exists in the stress versus crack opening displacement (COD) softening curve, such as in the case of FRCC, or for strain hardening behaviour, the use of such indirect testing measures to determine the tensile strength, and shape of the softening or hardening curve, of the material can be problematic. Papers are invited on any aspects of characterisation of fracture based material laws for steel, and other, fibre reinforced concretes and/or cementitious based composites, including for tension, shear, torsion, fatigue, etc.

This session will deal with testing methods for characterisation of fracture behaviour of fibre-reinforced cement-based composites and the development of constitutive laws and models. Contributions for the session should deal with fundamental theory, experimental investigation, or physical modelling of conventional fibre-reinforced concrete or of novel high-performance fibre-reinforced cementitious composites, such as textile-reinforced concrete, ultra-high performance concrete or strain-hardening cement-based composites.

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