

You are cordially invited to the seminar organised by Protective Technology Research Centre (PTRC).

Seminar on Geopolymer Concrete: Importance of Mixture Design

Abstract:

This presentation reports a general mix design procedure for alkali-activated slag-based concrete, which is an essential step towards industrial application of this new type of materials. The procedure includes 1) determination of coarse and fine aggregate ratio according to close packing model, as determined by measuring mixed bulk density; 2) determination of liquid phase (water content and activator) based on compressive strength; 3) determination of excess paste content by workability measurement. Effects of mix proportional factors, including activator composition, water content, fly ash content, and binder/aggregate ratio are examined on consistency, setting time and compressive strength. The relationship between performance and precursor composition is established using simplex centroid design method, by which a range of alkali-activated concretes with compressive strength grades of C40, C60, C80 and C120 are successfully prepared with initial setting time of 1 to 3 h and slump of more than 200 mm.

Speaker:

Professor Caijun SHI received his B. Eng and M. Eng from Southeast University, Nanjing, China and his Ph.D from the University of Calgary, Canada. He is currently Chair Professor of College of Civil Engineering, Hunan University and China Building Materials Academy, Vice President of Asia Concrete Federation, Editor-in-Chief of Journal of Sustainable Cement-Based Materials. His research interests include characterisation and utilisation of industrial by-products and waste materials, design and testing of cement and concrete materials, development and evaluation of cement additives and concrete admixtures, and solid and hazardous waste management. He has authored/co-authored more than 360 technical papers, co-authored/co-edited 16 books/proceedings. His Google Scholar H-index is 52 (by Jan 12, 2019). He was elected as a Fellow of International Energy Foundation in 2001, a Fellow of American Concrete Institute in 2007, and a Fellow of RILEM in 2016.

Date: 1 Feb 2019 (Friday)

Time: 2.00pm to 3.00pm

Venue: Lecture Theatre 5 (LT 5)

Block NS2, Level 2, NS2-02-07

Nanyang Technological University | Singapore

Floorplan - NS 2ND LEVEL

