






Jointly organized by:
Faculty of Engineering
Department of Civil Engineering
The University of Hong Kong

Distinguished Public Lecture (Online)

Fresh Cement-based Materials: from Rheology to 3D Printing

 Date: 7 April 2022 (Thu)

 Time: 4:00 p.m. Beijing, Hong Kong

 via Zoom <https://hku.zoom.us/j/95860093421>
(Meeting ID958 6009 3421)

Professor Nicolas Roussel

Senior Researcher at the
Navier Laboratory in France

Moderator: Dr. Ye Qian



About the Speaker

Nicolas Roussel is a senior researcher at the Navier Laboratory in France where he is in charge of the research activities dealing with mix design, rheology and processing of construction materials. With an H-index of 49, he is the author of more than 120 publications in international journals. Since 2021, he has been serving as president of the international RILEM association.

Abstract

Interest in the rheological properties of fresh cement-based materials has steadily grown in the last couple decades due to the development of “large-scale” automated and additive manufacturing technologies.

In the first part of this lecture, we will go through the physical and chemical origin of cement-based materials macroscopic properties and their evolutions with time. We will show the dominant role of colloidal attractive forces and adsorbed polymers on short time scales. We will moreover describe, on longer time scales, the reversible macroscopic consequences of the non-reversible cement hydrates nucleation.

In the second part, we will describe the way these properties dictate the outcome of both formative and additive shaping processes. We will in parallel revisit these processing technologies under the light of the central role played by gravity-induced stresses and their competition with yield stress and its time evolution.



Registration is required:

https://hkuems1.hku.hk/hkuems/ec_hdetail.aspx?guest=Y&ueid=80323

An electronic certificate of attendance will be issued to registered participants after the public lecture.



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