Abstract
In this talk, we propose a new multiscale problem, which is given as a mathematical model for moisture transport arising in a concrete carbonation process. When studying moisture transport it is a crucial to describe mathematically the relationship between the relative humidity and the degree of saturation. Our model consists of a diffusion equation for the relative humidity in a macro-domain and free boundary problems describing the relationship in potentially infinitely large micro-domains. The precise structures of the micro-domains are unknown and this is a significant feature of our new model, which we wish to emphasize. We discuss the local existence in time and uniqueness of solutions to our model.
This is a joint work with Prof. Toyohiko Aiki (Japan Women's University, Tokyo), Prof. Naoki Sato (Nagaoka National College of Technology) and Prof. Yusuke Murase (Meijo University).