

# 멀티 스케일 건축재료 연구실

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## 주요 연구

### Environmental Impact of Concrete

- The manufacturing of Portland cement account for 5 to 7% of the CO<sub>2</sub> that humans produce
- Solutions to improve the properties of concrete and reduce the quantity of Portland cement used in concrete are crucial!

### Synchrotron Technology on Concrete Research

- Local-binding structure and morphological details of C-S-H
- Hydrated tricalcium silicate(C<sub>3</sub>S), C-S-H with different molar ratios of Ca/Si, were synthesized (Syn-CSH)
- Silicate polymerization influenced the multiple scattering of distant shell atoms more than the binding energy of the core atoms.
- First observation of chemical shift of X-ray Absorption due to hydration

### Multi-scale Concrete Research

- Multi-scale approach from electronic or atomic to macro scale
- To understand and enhance the properties of concrete
- Multidisciplinary research (Physics, Chemistry, Material Science, Environmental Engineering, Structural Engineering, Geochemical Engineering)