

멀티 스케일 건축재료 연구실

- 소속: 서울 [공과대학 건축공학부](#)
- 영문명: Multi-scale Construction Materials Lab
- 실장: [배성철 공과대학 건축공학부](#) 교수
- 홈페이지: <https://sites.google.com/view/hyumcmlab>

□

목차

- [1 주요 연구](#)
 - [1.1 Environmental Impact of Concrete](#)
 - [1.2 Synchrotron Technology on Concrete Research](#)
 - [1.3 Multi-scale Concrete Research](#)

주요 연구

Environmental Impact of Concrete

- The manufacturing of Portland cement account for 5 to 7% of the CO₂ 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(C₃S), 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)