JISEUL PARK

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RESEARCH INTEREST

- Carbon Mineralization
- Sustainable cementitious material
- Industrial By-products
- Advanced Material Characterization
- Functional Admixtures
- Data-driven approach

EDUCATION

2017 - 2023 **Ph.D.** in Architecture and Architectural Engineering, **Seoul National University**
Advisor: Professor Sung-gul Hong (4.05/4.3)
Title: *Quantitative Evaluation on Carbon Nanotube Distribution for Functional Ultra-high Performance Concrete*

2012 - 2017 **B.S.** in Architecture and Architectural Engineering, **Seoul National University**
Advisor: Professor Moonseo Park (3.71/4.3, Cum Laude)

RESEARCH EXPERIENCE

Postdoctoral Researcher Mar. 2023 - Present

Civil Environmental Engineering, College of Engineering, Seoul National University, Korea

- Improving the reactivity of steel slag for sustainable construction materials
- Synthesis of calcium-silicate-hydrate from calcium carbonate and silica-rich material using catalysts
- Characterization of carbonation kinetics of industrial by-products using Raman microspectroscopy

Researcher Sep. 2017 - Mar. 2023

Architecture and Architectural Engineering, College of Engineering, Seoul National University, Korea

- Nondestructive analysis on cement composites using small-angle X-ray scattering and Raman microspectroscopy
- Microstructure analysis of ultra-high performance concrete incorporating admixtures
- Development of an analytical model for concrete structures during additive manufacturing

Project Jun. 2023 - May. 2025

Examination on the carbonation and CO_2 absorption of steel slag using data-driven model and Raman microspectroscopy, National Research Foundation of Korea, Korea

Sep. 2017 - Dec. 2021

Development of innovative design, material, and equipment for 3D printing small buildings/freeform members, Ministry of Land, Infrastructure and Transport, Korea

JOURNAL PAPERS

• **Jiseul Park**, Myungjun Jung, Yangwoo Lee, Hee-Young Hwang, Sung-gul Hong, Juhyuk Moon, *Quantified analysis of 2D dispersion of carbon nanotubes in hardened cement composite using confocal Raman microspectroscopy*, Cement and Concrete Research. 166 (**2023**) 107102.

• **Jiseul Park**, Sung-gul Hong, Juhyuk Moon, *Controlling hydration and setting of UHPC incorporating waterglass at different times of addition*, Journal of Building Engineering. 50 (**2022**) 104198.

• Myungjun Jung[1], **Jiseul Park**[1], Sung-gul Hong, Juhyuk Moon, *The critical incorporation concentration (CIC) of dispersed carbon nanotubes for tailoring multifunctional properties of ultra-high performance concrete (UHPC)*, Journal of Materials Research and Technology. 17 (**2022**) 3361–3370.

• Myungjun Jung, **Jiseul Park**, Sung-gul Hong, Juhyuk Moon, *Electrically cured ultra-high performance concrete (UHPC) embedded with carbon nanotubes for field casting and crack sensing*, Materials & Design. 196

(**2020**) 109127.

• Myungjun Jung, **Jiseul Park**, Sung-gul Hong, Juhyuk Moon, *Micro- and meso-structural changes on electrically cured ultra-high performance fiber-reinforced concrete with dispersed carbon nanotubes*, Cement and Concrete Research. 137 (**2020**) 106214.

• **Jiseul Park,** Yangwoo Lee, Hee-Young Hwang, Sung-gul Hong, Juhyuk Moon, *Nondestructive Raman Microspectroscopy for the Determination of Carbon Nanotube Content in Cement Nanocomposites*. Under Review (Cement and Concrete Research).

• **Jiseul Park,** Seung-su Jeong, Seung-ki Hong, Seohyung Lee, Sung-gul Hong, *Numerical modeling and experimental validation of the stability of cylindrical structure during 3D concrete printing,* manuscript in preparation.

CONFERENCES

• **Jiseul Park,** Seung-su Jeong, Sung-gul Hong, *Numerical analysis on stability of cylindrical structures in 3D printing process*, Proceedings of the 14th fib International PhD Symposium in Civil Engineering, Rome, Italy (Sep. **2022**)

• Hee-Young Hwang, **Jiseul Park,** Sung-gul Hong*, Effect of calcined clay minerals on hydration kinetics of tricalcium silicate*, Proceedings of the 14th fib International PhD Symposium in Civil Engineering, Rome, Italy (Sep. **2022**)

• **Jiseul Park,** Sung-gul Hong, *Hydration and flow characteristics of Ultra-High Performance Concrete with sodium silicate*, Proceedings of HiPerMat 2020 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials, (May. **2020**)

PATENT APPLICATIONS

• "Quantification method of dispersion of CNT in CNT composites using spatially-resolved small angle X-ray scattering", Juhyuk Moon, Sung-gul Hong, **Jiseul Park**, Myungjun Jung, Korean Patent, 10-2528011 (**2023**).

• "Method for quantifying the degree of carbon-based nanomaterials dispersion in cement-based composite and method for nondestructive quality evaluation of cement-based structure containing carbon-based nanomaterials using the same", Juhyuk Moon, Sung-gul Hong, **Jiseul Park**, Provisional Patent (**2022**).

AWARDS AND SCHOLARSHIPS

- BrainKorea21 Four, Seoul National University, Korea — Mar. 2021 - Dec. 2022
- Alumni Association of Department of Architecture and Architectural Engineering SNU Scholarship, Seoul National University, Korea — Mar. 2021
- Hilti Graduate Scholarship, Hilti Korea Ltd., Korea — Dec. 2019, Feb. 2022
- Merit-based Scholarship, Seoul National University, Korea — Mar. 2018, Mar. 2019
- National Science & Technology Scholarship, Seoul National University, Korea — Sep. 2014 -Mar. 2017

TEACHING EXPERIENCE

Teaching Assistant 2018-F

- 4012.311 001: Structural design in architecture
- 4013.204 001: Structural system in architecture

SKILLS

Language	Fluent in English, Native in Korean
Tool	Raman Spectroscopy, XRD, TGA, micro-CT, SEM, TEM
Computer	R, MATLAB, Python, C++

EXTRA-CURRICULAR ACTIVITIES

President of volunteering group (Habitat in SNU) 2014-2015

- Organized 50+ volunteering events for 1000+ members.
- Planning and managing 5+ projects supported by SNU and local community.
- Awarded the Volunteer in SNU in 2016.