JISEUL PARK

Seoul National University
Department of Civil Environmental Engineering
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RESEARCH INTERESTS

- Carbon Mineralization
- Industrial By-products
- Functional Admixtures
- Sustainable Cementitious Material
- Advanced Material Characterization
- 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 the 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 of 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 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." submitted to the Chemical Engineering Journal.

• **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 the 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 English, Native 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
- Planned and managed 5+ projects supported by SNU and the local community