Yogarajah Elakneswaran, Ph.D.

Curriculum Vitae

Division of Sustainable Resources Engineering
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EDUCATIONAL HISTORY

Ph.D in Sustainable Resources Engineering in September. 2009
Hokkaido University, Japan.
M.Eng. in Sustainable Resources Engineering in September. 2006
Hokkaido University, Japan.
B.Sc (Hons) in Civil Engineering in July 2003
University of Moratuwa, Sri Lanaka.

PROFESSIONAL SUMMARY

Following my Ph.D., I completed two years of postdoctoral research at Hokkaido University under a prestigious JSPS fellowship. My career trajectory includes 2.5 years as a Research Associate at Tokyo University and one year as a Research Engineer at Taisei Corporation before returning to Hokkaido University. Currently, I am a Professor in the Division of Sustainable Resources Engineering at Hokkaido University.

I have made significant contributions to cementitious materials chemistry and engineering, with a distinctive expertise in these materials' design, characterisation, and long-term performance in challenging environments. Recently, I have expanded my research to include amine-based technologies for carbon dioxide (CO_2) capture, the application of nanomaterials in cement-based systems, and geopolymers. Importantly, I have been actively collaborating with esteemed institutions, including the University of Sheffield, the University of Manchester, RMIT University (Australia), Curtin University (Australia), the Swinburne University of Technology (Australia), Saudi Aramco, and the University of Stavanger (Norway), to pursue advancements within this field.

My work has been widely recognized, with over 100 technical publications and presentations at more than 50 international conferences. The Maeda Engineering Foundation in Japan honoured me with the Yamada Award for the best PhD thesis in Civil engineering. Additionally, I have secured multiple competitive research grants, including awards from the Japan Cement Association (2006, 2016, 2023) and KAKENHI Grants-in-Aid for Scientific Research (2016, 2018, 2020) as Principal Investigator. I have actively contributed to the UK-Japan Civil Nuclear Research Programme, serving as a Co-Investigator (2016–2019, 2019–2022) and currently as a Principal Investigator (2023–2026). My interdisciplinary research aims to advance sustainable development through innovative material technologies and engineering solutions.

FEATURED PUBLICATIONS

1) Xiaobo Niu, Yogarajah Elakneswaran, et al., Tailoring neutron-shielding boron-metakaolin geopolymers with B4C filler: Surfactant-driven interfacial and microstructural control, Cement and Concrete Research, Vol. 200, 108096 (2026)
2) Binglin Guo, Cheng Wang, Ping Ye, Huyong Qin, Yuting Chu, Kaixuan Wang, Hengjun Mei, Peng Gao, Binggen Zhan, Qijun Yu, Keiko Sasaki, Yogarajah Elakneswaran, Mechanistic Insights into the Interaction between Strätlingite and I–/IO3–: Implications on the Iodine Migration in Alkali-Activated Slag Cement, Inorganic Chemistry (2026)
3) Kirushnapillai Kopitha, Pathmanathan Rajeev, Jay Sanjayan, Yogarajah Elakneswaran, Buildability Enhancement of 3D Printed Concrete Using Carbonated Water and Partial Replacement of OPC with Reactive MgO, Journal of Advanced Concrete Technology, Vol. 24 (2), 60-72, (2026)
4) Xiaobo Niu, Yogarajah Elakneswaran, et al., 'Incorporation of boron into metakaolin-based geopolymers for radionuclide immobilisation and neutron capture potential', Cement and Concrete Research, Vol. 190, 107814 (2025)

5) Sivasubramaniam Seralathan, Xiaobo Niu, Yogarajah Elakneswaran, Chewei Fang, 'Enhanced stabilisation of simulant organic nuclear wastes in metakaolin-based geopolymers using graphene oxide', Applied Clay Science, Vol. 271, 107793 (2025)
6) Kirushnapillai Kopitha, Pathmanathan Rajeev, Jay Sanjayan, Yogarajah Elakneswaran, 'CO_2 sequestration and low carbon strategies in 3D printed concrete', Journal of Building Engineering, Vol. 99, 111653 (2025)
7) Yoganandan Govindaraj, Ryosuke Saito, Keiichi Yano, Masatoshi Sakairi, Koji Fushimi, Ryoma Kitagaki, Yogarajah Elakneswaran, Hisanori Senboku, Yuya Yoda, Masato Tsu-jino, Akira Nishida, 'Alkaline ethanolamine as dual-functional agent: Effective CO2 capture agent and corrosion inhibitor for structural applications', Chemical Engineering Journal, Vol. 504, 158810 (2025)
8) Mylvaganam Nithurshan, Yogarajah Elakneswaran, et al.,' Exploring the reinforcing mechanism of graphene oxide in cementitious materials through microstructural analysis of synthesised calcium silicate hydrate', Cement and Concrete Composites, Vol.153, 105717 (2024)
9) Susan A. Bernal, Yuvaraj Dhandapani, Yogarajah Elakneswaran et al. 'Report of RILEM TC 281-CCC: A critical review of the standardised testing methods to determine carbonation resistance of concrete', Materials and Structures, 57, 173 (2024)
10) Xiaobo Niu, Yogarajah Elakneswaran, Naoki Hiroyoshi, 'Surface chemistry and radionuclide anion immobilisation potential of phosphoric acid-activated metakaolin-based geopolymers', Cement and Concrete Research, Vol.181, 107549 (2024)