Hyunjung "Nick" Kim
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Short Bio

- Hyunjung "Nick" Kim is a Professor at the Department of Earth Resources and Environmental Engineering at Hanyang University in Seoul, South Korea. Dr. Kim received his B.S. and M.S. degrees from Hanyang University in Seoul, Korea and Ph.D. from the University of California, Riverside in Chemical and Environmental Engineering. He specializes in mineral processing and extractive metallurgy, sustainable process development, and urban mining with over ten years of academic research experience. Dr. Kim currently serves as the Editorial Member/Associate Editor in several journals. Dr. Kim has authored more than 170 refereed journal publications and several books/book chapters, and he has been awarded the Young Scientist award from the Industrial Minerals & Aggregates Division of the Society for Mining, Metallurgy, and Exploration (SME) of in 2016. Dr. Kim has been counted in the Standford University Names World's Top 2% Scientists in 2023 (https://ecebm.com/2023/10/04/stanford-university-names-worlds-top-2-scientists-2023/).

Personal Web Page

- https://chipmunk-gardenia-yrpa.squarespace.com/

Research Interests

- My research interests can be principally summarized in four key disciplines as follows: (1) Mineral Processing and Extractive Metallurgy, (2) Sustainable Process Development, (3) Urban Mining, and (4) Colloid Chemistry. I adopt a multidisciplinary approach to these disciplines, recognizing that it can significantly boost progress within each discipline. The five disciplines are briefly introduced as follows:

  1. *Mineral Processing and Extractive Metallurgy*: My focus is on the extraction of valuable minerals from primary and secondary sources, leveraging innovative techniques to optimize recovery and purity.
  2. *Sustainable Process Development*: I am dedicated to pioneering more sustainable methods in resource utilization, emphasizing the need for efficiency and environmental friendliness.
  3. *Urban Mining*: I explore the potential of extracting valuable minerals from waste materials, which is a fundamental strategy in promoting a circular economy. Through urban mining, we can significantly reduce our dependance on natural reserves, decrease energy consumption, and reduce environmental impacts commonly associated with traditional mining.
  4. *Colloid Chemistry*: My work comprises a detailed analysis of the physicochemical interactions occurring between particles and bubbles, which are critical in the flotation process. Understanding these complex interactions can enhance the separation of minerals.

Education

University of California, Riverside, CA
Ph.D., Chemical and Environmental Engineering, *Sept. 2005 – Sept. 2009* (Defended)
Dec. 2009 (Conferred)

Hanyang University, Seoul, Korea
M. Sc., Geoenvironmental System Engineering, *Sept. 2000 – Feb. 2003*

Hanyang University, Seoul, Korea
B. Sc., Earth Environment and Construction Engineering (Graduated), *Mar. 1996 – Aug. 2000*
Earth Resources and Environmental Engineering (Entered)

Work Experience

Hanyang University
Department of Earth Resources and Environmental Engineering
Professor *Mar. 2022 –present*

Korea Energy and Mineral Resources Engineering Program
Program Director *Oct. 2014 –Feb. 2019*

Brain Korea 21 (BK21) FOUR Program
Environmental Education Center for Glocal Resources Circulation
Vice Director *Sep. 2021 –Feb. 2022*

Brain Korea 21 (BK21) PLUS Program
Advanced Educational Track for Unconventional/Recycling Resources
Program Leader *Sep. 2013 – Aug. 2020*

USDA-ARS, U.S. Salinity Laboratory, Riverside, CA
Visiting Scholar *Aug. 2017 –Jul. 2018*

Jeonbuk National University, Jeonju, South Korea
Deputy Vice President of University Performance Management *Feb. 2021 –Feb. 2022*
Director of University Education Performance Management Center

Department of Mineral Resources and Energy Engineering
Department Chair *Jan. 2015 –Dec. 2016*
Professor *Apr. 2019 – Feb. 2022*
Associate Professor *Apr. 2014 – Mar. 2019*
Research-Oriented Professor *Mar. 2013 – Feb. 2015*
Assistant Professor *Apr. 2012 – Mar. 2014*
Full-time Lecturer *Apr. 2010 – Mar. 2012*

USDA-ARS, U.S. Salinity Laboratory, Riverside, CA
University of California, Riverside, CA (Department of Environmental Sciences)
Postdoctoral Research Associate *Oct. 2009 – Feb. 2010*

Advising Experience

Jeongwoo Kim (Undergraduate Student, September 2023-Present, Hanyang University); Hyeojeong Nam (Undergraduate Student, June 2023-Present, Hanyang University); Jeongwoo Han (Master, February 2022-Present, Hanyang University); Jihye Yang (Master, February 2022-Present, Hanyang University); Hyeonsu Park (Master, February 2022-Present, Hanyang University); Hee-eun Jeong (Master, February 2022-Present, Hanyang University); Heewon Kang (Master, February 2022-Present, Hanyang University); Seungmin Kang (Master, February 2022-Present, Hanyang University); Muhammad Farhan (Ph. D, February 2023-Present, Hanyang University); Humma Cheema (Postdoctoral Researcher, August 2022-October 2023, Hanyang University); Levie Mweene (Postdoctoral Researcher, August 2022-August 2023, Hanyang University); Sadia Ilyas (BrainPool Scientist & Research Professor, November 2019-present, Jeonbuk National University & Hanyang University); Gukhwa Hwang (Postdoctoral Researcher, September 2020-April 2021, Jeonbuk National University); Allan Gomez (Postdoctoral Researcher, September 2020-present, Jeonbuk National University & Hanyang University); Yosep Han (Research professor, April 2010-Feb. 2017, Jeonbuk National University); Gukhwa Hwang, (Ph. D, September 2015-August 2020, Jeonbuk National University); Donghyun Kim (Ph. D, March 2016-August 2020, Jeonbuk National University); Allan Gomez (Ph. D, March 2016-August 2020, Jeonbuk National University); Junhyun Choi (Ph. D, March 2014-February 2019, Chonbuk National University); Sowon Choi (Doctorate Candidate, March 2019-present, Jeonbuk National University); Gilsang Hong (Doctorate Candidate, March 2021-present,

Jeonbuk National University); Junhyun Choi, Woori Chae (Master, March 2011-August 2013); Jeongsik Hong, Rene Silva (Master, September 2012-February 2015, Chonbuk National University); Jeonghyun Park, Kyuhyung Park, Eunseong Lee (Master, March 2013-February 2015); Gukwha Hwang, Donghyun Kim (Master, March 2013-August 2015, Chonbuk National University); Gahee Kim, Allan Gomez (Master, March 2014- February 2016, Chonbuk National University); Soyeon Park, (Master, March 2014-August 2016, Chonbuk National University); Injae Choi, Danilo Borja (Master, March 2015-February 2017, Chonbuk National University); Gilsang Hong (Master, March 2016-August 2018, Chonbuk National University); Keenju Moon Hong (Master, March 2016-February 2018, Chonbuk National University); Sowon Choi (Master, March 2017-February 2019, Chonbuk National University); Junhyuk You (Master, March 2018-February 2020, Jeonbuk National University); Stephen Kayombo Solongo (Master, September 2018-August 2020, Jeonbuk National University); Byungcheol You (Master Candidate, March 2020-present, Jeonbuk National University); Yoonjeong Jang (Master Candidate, September 2020-present, Jeonbuk National University); Suhyeon Jin (Master Candidate, March 2021-present, Jeonbuk National University); Soyeon Park (Research Assistant, March 2021-present Jeonbuk National University); Gilsang Hong, Hyejeong Yoon, Sohyung Shim (Undergraduate Student, April 2010-August 2013, Chonbuk National University); Heejae Kim (Undergraduate Student, January 2015-March 2016, Chonbuk National University); Seokchan Lim, Seokju Hong (Undergraduate Student, June 2015-December 2015, Chonbuk National University); Kim Anh Nguyen (Research Assistant, March 2016-February 2017, Chonbuk National University); Sowon Choi (Undergraduate Student, June 2015- February 2017, Chonbuk National University); Jinseon Son (Undergraduate Student, March 2016-February 2018, Chonbuk National University); Junhyuk You (Undergraduate Student, March 2016-February 2018, Chonbuk National University); Kihoon Moon (Undergraduate Student, December 2016-August 2017, Chonbuk National University); Minji Kim (Undergraduate Student, December 2016-August 2017, Chonbuk National University); Suhyeon Jin (Undergraduate Student, April 2018-February 2021, Jeonbuk National University); Yejin Lee (Undergraduate Student, September 2018-August 2019, Chonbuk National University); Jongwon Park (Undergraduate Student, January 2019- July 2019, Chonbuk National University); Juhee Jo (Undergraduate Student, January 2019-August 2019, Chonbuk National University); Seonjun Yeom (Undergraduate Student, September 2019-July 2020, Jeonbuk National University); Heechan Noh (Undergraduate Student, October 2020-present, Jeonbuk National University); Chanwoo Yang (Undergraduate Student, December 2020-present, Jeonbuk National University); Matthew Yates (Summer 2006 and 2007, UC Davis); Kathy Nguyen Huynh (Summer 2007, UCLA); Matthew Graham (2008, UCR); Troy Ezeh (Summer 2008−Summer 2009, UCR)

Awards and Honors

- Outstanding Associate Editor, Journal of Environmental Quality(SCIE) 2021
- Best Professor Award (Research), JBNU Engineering 2018
- Excellent Professor (High Citation), JBNU 2018
- Young Scientist Award, IMAD, Society for Mining, Metallurgy, and Exploration(SME) 2016
- KSMER Excellent Poster Award *2015*
- KSMER Best Presentation Award *2014*
- Young Scientist Award, CBNU Engineering *2013*
- KoSSGE Excellent Poster Award *2012*
- KoSSGE Excellent Poster Award *2011*
- Krieger & Stewart Scholarship *2008 – 2009*
- Chancellor's & College Dissertation Fellowship 2009
- Graduate Dean's Dissertation Research Grant *2009*
- Graduate Student Association Travel Award, University of California, Riverside *2008, 2009*
- Gordon Research Conference (on Environmental Sciences Water) Travel Fellowship *2008*
- Graduate Division Doctoral Fellowship, University of California, Riverside *2005 – 2009*
- Korea Science and Engineering Foundation Grant, Korea Government *2005 – 2007*

Invited Seminars

- "Colloidal Interactions in Mineral Processing: Case Studies and Future Direction", presented at the School of Resources and Environmental Engineering, Wuhan University of Technology, July 03, 2023, China. (Invited Talk)

- "Optimized Delivery of Nanoparticles and Genetically Engineered Bacteria to Enhance Soil and Groundwater Remediation", presented at the 4th International Conference on Contaminated Land, Ecological Assessment and Remediation 2018 (CLEAR2018), Aug 16-18, 2018, Hong Kong. (Plenary Talk, participated as coauthor)
- "Colloid Chemistry in Mineral Flotation", presented at the 2017 Forum on Innovation & Standardization in Green Concept of Industrial Mineral Products, May 12-15, 2017, Xian, China.
- "How Does Roughness Control Colloid Retention and Release in Saturated Porous Media?", presented at the International Workshop: Soil Physics and the Nexus of Food, Energy, and Water, Aug 3-5, 2017, Shenyang Liaoning Province, China. (participated as coauthor)
- "Green Technology for Heavy Metal Removal from Mine Wastes", presented at the Department of Chemical Engineering, University of Cape Town, August, 2015, South Africa.
- "Alternative Ways for Copper Oxide Mineral Flotation", presented at the Department of Mining & Geological Engineering, University of Arizona, February, 2015, Tucson, USA.
- "Fate and Transport of ZnO-NPs in Saturated Porous Media", presented at the University California Center for Environmental Implications of Nanotechnology, UCLA, February, 2015, LA, USA.
- "Transport and Retention of Nanomaterials in Porous Media", presented at the 3rd Joint Seminar on Geo-Environmental Engineering & Recycling (GER 2013), August, 2013, Busan, Korea.
- "Deposition and Aggregation of Nanomaterials: Current Status and Challenges", presented at the National Institute of Environmental Research, September, 2010, Korea.
- "The Effect of Extracellular and Surface Macromolecules on the Deposition of Pathogenic Microorganisms in Saturated Porous Media", presented at the Chonbuk National University, March, 2010, Korea.
- "The Effect of Extracellular and Surface Macromolecules on the Deposition of Pathogenic Microorganisms in Saturated Porous Media", presented at the Ben Gurion University of the Negev in the Zuckerberg Institute for Water Research, January 13, 2010, Israel. (participated as coauthor)

Books & Book Chapters

1. **H. Kim**, (2022) "Microplastics: Analytical Challenges and Environmental Impacts" CRC Press, ISBN: 9781032060774.
2. S Ilyas, **H Kim**, RR Srivastava (2021) "Sustainable Urban Mining of Precious Metals" CRC Press Boca Raton, FL. ISBN: 978-0-367-51750-2.
3. M. Urík, P. Littera, **H. Kim**, I. Hagarová, E. Duborská, P. Matúš (2021). *Sorptive and Redox Interactions of Humic Substances and Metal(loid)s in the Presence of Microorganisms* In: Ram Prasad, S. Chandra Nayak, Ravindra Nath Kharwar, and Nawal Kishor Dubey (eds) Mycoremediation and Environmental Sustainability. Springer.
4. S Ilyas, RR Srivastava, **H Kim**, H. A. Cheema (2021). *Enhanced Electrokinetic Techniques in Soil Remediation for Removal of Heavy Metals* In: Alexandra B. Ribeiro and Majeti Narasimha Vara Prasad (eds) Electrokinetic Remediation for Environmental Security and Sustainability. Wiley Online Library. DOI; 10.1002/9781119670186.ch13.
5. S Ilyas, **H Kim,** RR Srivastava (2021) *Role of Chemistry in Alternative Energy: The Thermodynamics and Electrochemical Approach*. In:. The Handbook of Environmental Chemistry. Springer, Berlin, Heidelberg. https://doi.org/10.1007/698_2020_595.
6. S Ilyas, **H Kim,** RR Srivastava (2021) *Potential and Transformational Needs of Alternative Energy in Developing Countries*. In:. The Handbook of Environmental Chemistry. Springer, Berlin, Heidelberg. https://doi.org/10.1007/698_2020_612.
7. S Ilyas, RR Srivastava, **H Kim,** Z Abbas (2020) *Electrical and electronic waste in Pakistan: the management practices and perspectives*. In:. The Handbook of Electronic Waste Management. Butterworth-Heinemann., Elsevier. DOI; 10.1016/B978-0-12-817030-4.00007-3

Publications

- **Total citation: 7,245 with Google H-Index of 48 (172 papers, October 4, 2023)**
- **Recent 5 Year Citation (2018-): 5,166 with Google H-Index of 39**
- **H-index in Scopus: 44 (October 4, 2023) (https://www.scopus.com/authid/detail.uri?authorId=56063158700)**
- **Source: https://scholar.google.com/citations?user=-qRAYMAAAAAJ&hl=en**

PEER REVIEWED JOURNAL ARTICLES (SCI(E)) (* corresponding author)

1. M Levie, H-S Park, S Kang, **H Kim*** (2023) "Separation of chalcopyrite from a siliceous copper ore using polyethylene oxide as a depressant: An experimental study complimented by theoretical investigation" *Minerals Engineering* 204, 108445. JIF: 4.8.

2. A Gomez-Flores, SA Bradford, G Hong, **H Kim*** (2023) "Statistical analysis, machine learning modeling, and text analytics of aggregation attachment efficiency: Mono and binary particle systems" *Journal of Hazardous Materials* 454, 131482. JIF: 13.6.

3. W Song, S Choi, **H Kim***, S Ilyas (2023) "Hydrometallurgical recycling of lithium from waste saggar: Studies on influential role of acid/alkaline additives, leaching kinetics and mechanism*" Journal of Environmental Chemical Engineering*, 110407. JIF: 7.7.

4. L Mweene, A Gomez-Flores, HE Jeong, S Ilyas, **H Kim*** (2023) "Challenges and Future in Ni Laterite Ore Enrichment: A Critical Review*" Mineral Processing and Extractive Metallurgy Review*, 1-25. JIF: 5.0.

5. S Ilyas, RR Srivastava, **H Kim*** (2023) "Selective separation of cobalt versus nickel by split-phosphinate complexation using a phosphonium-based ionic liquid*" Environmental Chemistry Letters* 21(2), 673-680. JIF: 15.7.

6. S Ilyas, RR Srivastava, **H Kim*** (2023) "Cradle-to-cradle recycling of spent NMC batteries with emphasis on novel Co2+/Ni2+ separation from HCl leached solution and synthesis of new ternary precursor" *Process Safety and Environmental Protection* 170, 584-595. JIF: 7.8.

7. A Gomez-Flores, SA Bradford, L Cai, M Urík, **H Kim*** (2023) "Prediction of attachment efficiency using machine learning on a comprehensive database and its validation" *Water Research* 229, 119429. JIF: 12.8.

8. S Ilyas, RR Srivastava, **H Kim*** (2023) "Green separation of Co2+ over Ni2+ by split-phosphinate complexation using phosphonium-based ionic liquid as extraction carrier" *Environmental Chemistry Letters* 21 (2), 673-680. JIF: 15.7

9. RR Srivastava, DK Rajak, S Ilyas, **H Kim**, P Pathak (2023) "Challenges, Regulations, and Case Studies on Sustainable Management of Industrial Waste" *Minerals*, 13(1), 51. JIF: 2.5.

10. A Gomez-Flores, S Ilyas, GW Heyes, **H Kim*** (2023) "A critical review of artificial intelligence in mineral concentration" *Minerals Engineering* 189, 107884. JIF: 4.8.

11. S Ilyas, RR Srivastava, VK Singh, R Chi, **H Kim*** (2022) "Recovery of critical metals from spent Li-ion batteries: Sequential leaching, precipitation, and cobalt–nickel separation using Cyphos IL104" *Waste Management*, 154, 175-186. JIF: 8.1.

12. SA Bradford, C Shen, **H Kim**, RJ Letcher, J Rinklebe, YS Ok, L Ma (2022) "Environmental applications and risks of nanomaterials: An introduction to CREST publications during 2018–2021" *Critical Reviews in Environmental Science and Technology* 52(21), 3753-3762. JIF: 12.6.

13. K Balíková, H Vojtková, E Duborská, **H Kim**, P Matúš, M Urík (2022) "Bioleaching of carbide waste using spent culture of Acidithiobacillus bacteria: Effective factor evaluation and ecological risk assessment" *Environmental Technology & Innovation* 28, 102801. JIF: 7.1.

14. M Pirsaheb, S Zadsar, H Hossini, SO Rastegar, **H Kim** (2022) "Role of Exopolysaccharides of *Pseudomonas* in Heavy Metal Removal and Other Remediation Strategies" *Polymers* 14(20), 4253. JIF: 5.0.

15. A Gomez-Flores, GW Heyes, S Ilyas, **H Kim*** (2022) "Effects of artificial impeller blade wear on bubble–particle interactions using CFD (k–ε and LES), PIV, and 3D printing" *Minerals Engineering* 186, 107766. JIF: 4.8.

16. S Han, A Gomez-Flores, S Choi, **H Kim***, Y Lee (2022) "A study of nanofluid stability in low–salinity water to enhance oil recovery: An extended physicochemical approach" *Journal of Petroleum Science and Engineering* 215, 110608. JIF: 5.168.

17. A Gomez-Flores, GW Heyes, S Ilyas, **H Kim*** (2022) "Prediction of grade and recovery in flotation from physicochemical

and operational aspects using machine learning models" *Minerals Engineering* 183, 107627. JIF: 4.8.

18. Q Chang, D Zhu, L Hu, **H Kim**, Y Liu, L Cai (2022) "Rapid photo aging of commercial conventional and biodegradable plastic bags" *Science of The Total Environment* 822, 153235. JIF: 9.8.

19. S Choi, S Ilyas, **H Kim*** (2022) "Intensive Leaching of Red Phosphor Rare Earth Metals from Waste Fluorescent Lamp: Parametric Optimization and Kinetic Studies" *JOM* 74(3), 1054-1060. JIF: 2.6.

20. S Ilyas, **H Kim*** (2022) "Recovery of platinum-group metals from an unconventional source of catalytic converter using pressure cyanide leaching and ionic liquid extraction" *JOM* 74(3), 1020-1026. JIF: 2.6.

21. A Gomes-Flores, G Hwang, S Ilyas, **H Kim*** (2022) "A CFD study of the transport and fate of airborne droplets in a ventilated office: The role of droplet – droplet interactions" *Frontiers of Environmental Science and Engineering* 16(3), 31. JIF: 6.4.

22. S Ilyas, RR Srivastava, **H Kim*** (2022) "Mobilization of platinum and palladium from exhausted catalytic converters using bio-cyanide and an ionic-liquid as mass transport carriers" *Green Chemistry* 24(13), 5204-5218. JIF: 9.8.

23. S Ilyas, RR Srivastava, **H Kim***, N Ilyas (2022) "Biotechnological recycling of hazardous waste PCBs using Sulfobacillus thermosulfidooxidans through pretreatment of toxicant metals: Process optimization and kinetic studies" *Chemosphere* 286, 131978. JIF: 8.8.

24. Y Fu, W Yin, X Dong, C Sun, B Yang, J Yao, H Li, C Li, **H Kim** (2021) "New insights into the flotation responses of brucite and serpentine for different conditioning times: Surface dissolution behavior*" International Journal of Minerals, Metallurgy and Materials*, 28, 1898-1907. JIF: 4.8.

25. S Ilyas, **H Kim***, RR Srivastava (2021) "Separation of platinum group metals from model chloride solution using phosphonium-based ionic liquid" *Separation and Purification Technology*, 278, 119577. JIF: 8.6.

26. Y Pachepsky, R Anderson, T Harter, D Jacques, R Jamieson, J Jeong, **H Kim**, K Lamorski, G Martinez, Y Ouyang, S Shukla, Y Wan, W Zheng, W Zhang (2021) "Fate and transport in environmental quality" *Journal of environmental quality* 50(6), 1282-1289. JIF: 2.4.

27. Bence Farkas, Hana Vojtková, Marek Bujdoš, Marek Kolenčík, Martin Šebesta, Michaela Matulová, Eva Duborská, Martin Danko, **H Kim**, Kateřina Kučová, Zuzana Kisová, Peter Matúš, Martin Urík (2021) "Fungal mobilization of selenium in the presence of hausmannite and ferric oxyhydroxides" *Journal of Fungi* 7(10), 810. JIF: 4.7.

28. Bence Farkas, Marek Bujdoš, Filip Polák, Michaela Matulová, Martin Cesnek, Eva Duborská, Ondřej Zvěřina, **H Kim**, Martin Danko, Zuzana Kisová, Peter Matúš, Martin Urík (2021) "Bioleaching of Manganese Oxides at Different Oxidation States by Filamentous Fungus *Aspergillus niger*" *Journal of Fungi* 7(10), 808. JIF: 4.7.

29. D Zhu, L Cai, Z Sun, A Zhang, P Héroux, **H Kim**, W Yu, Y Liu (2021) "Efficient degradation of tetracycline by RGO@ black titanium dioxide nanofluid via enhanced catalysis and photothermal conversion" *Science of The Total Environment* 787, 147536. JIF: 9.8.

30. H Ma, Y Li, C Shen, CV Chrysikopoulos, **H Kim** (2021) "Advances in Pollutant Transport in Critical Zone Environments" *Frontiers in Water* 3, 693102. JIF: 2.9.

31. S Choi, S Ilyas, G Hwang, **H Kim*** (2021) "Sustainable treatment of bimetallic (Ag–Pd/α-Al_2O_3) catalyst waste from naptha cracking process: An innovative waste-to-value recycling of precious metals" *Journal of Environmental Management* 291, 112748. JIF: 8.7.

32. S Ilyas, RR Srivastava, **H Kim*** (2021) "O_2-enriched microbial activity with pH-sensitive solvo-chemical and electro-chlorination strategy to reclaim critical metals from the hazardous waste printed circuit boards" *Journal of Hazardous Materials*, 416, 125769. JIF: 13.6.

33. SK Solongo, A Gomes-Flores, S Ilyas, **H Kim*** (2021) "Roles of solution chemistry and reagent–reagent interaction on carboxymethylcellulose adsorption onto graphite and implications on its floatability" *Minerals Engineering*, 167, 106873. JIF: 4.8.

34. S Ilyas, RR Srivastava, **H Kim*** (2021) "Gold recovery from secondary waste of PCBs by electro-Cl2 leaching in brine solution and solvo-chemical separation with tri-butyl phosphate" *Journal of Cleaner Production*, 295, 126389. JIF: 11.1.

35. M Urík, B Farkas, MB Miglierini, M Bujdoš, Z Mitróová, **H Kim**, P Matúš (2021) "Mobilisation of hazardous elements from arsenic-rich mine drainage ochres by three Aspergillus species" *Journal of Hazardous Materials*, 409, 124938. JIF: 13.6.

36. S Ilyas, RR Srivastava, **H Kim*** (2021) "Liquid-liquid extraction of phosphorus from sulfuric acid solution using benzyl-di-methyl amine*" International Journal of Minerals, Metallurgy and Materials*, 28(3), 367-372. JIF: 4.8.

37. S Ilyas, RR Srivastava, **H Kim***, S Das, VK Singh (2021) "Circular bioeconomy and environmental benignness through microbial recycling of e-waste: A case study on copper and gold restoration" *Waste Management*, 121, 175-185. JIF: 8.1.

38. P Makhdoumi, AA Amin, H Karimi, M Pirsaheb, **H Kim**, H Hossini (2021) "Occurrence of microplastic particles in the most popular Iranian bottled mineral water brands and an assessment of human exposure" *Journal of Water Process Engineering*, 39, 101708. JIF: 7.0.

39. SA Bradford, S Sasidharan, **H Kim**, A Gomez-Flores, T Li, C Shen (2021) "Colloid Interaction Energies for Surfaces with Steric Effects and Incompressible and/or Compressible Roughness" *Langmuir*, 37(4), 1501-1510. JIF: 3.9.

40. **H Kim***, H Zhao, S Ilyas (2021) "Editorial on Special Issue "Surface Chemistry in Mineral Processing and Extractive Metallurgy"" *Minerals*, 11(1), 13. JIF: 2.5.

41. S Ilyas, **H Kim***, RR Srivastava, S Choi (2021) "Cleaner production of rare earth elements from phosphorus-bearing sulfuric acid solution of vein deposit monazite" *Journal of Cleaner Production*, 278, 123435. JIF: 11.1.

42. S Ilyas, **H Kim***, RR Srivastava (2021) "Extraction equilibria of cerium (IV) with Cyanex 923 followed by precipitation kinetics of cerium (III) oxalate from sulfate solution" *Separation and Purification Technology*, 254, 117634. JIF: 8.6.

43. S Ilyas, **H Kim***, RR Srivastava (2021) "Hydrometallurgical Recycling of Rare Earth Metal–Cerium from Bio-processed Residual Waste of Exhausted Automobile Catalysts" *JOM*, 73(1), 19-26. JIF: 2.6.

44. S Ilyas, RR Srivastava, **H Kim*** (2020) "Disinfection technology and strategies for COVID-19 hospital and bio-medical waste management" *Science of the Total Environment*, 749, 141652. JIF: 9.8.

45. B Farkas, M Kolenčík, M Hain, E Dobročka, G Kratošová, M Bujdoš, H Feng, Y Deng, Q Yu, R Illa, BR Sunil, **H Kim**, P Matúš, M Urík (2020) "Aspergillus niger Decreases Bioavailability of Arsenic (V) via Biotransformation of Manganese Oxide into Biogenic Oxalate Minerals" *Journal of Fungi*, 6(4), 270. JIF: 4.7.

46. M Šebesta, M Urík, M Bujdoš, M Kolenčík, I Vávra, E Dobročka, **H Kim**, P Matúš (2020) "Fungus Aspergillus niger Processes Exogenous Zinc Nanoparticles into a Biogenic Oxalate Mineral" *Journal of Fungi*,6(4), 210. JIF: 4.7.

47. KN Seitkamal, NK Zhappar, VM Shaikhutdinov, AK Shibayeva, S Ilyas, IV Korolkov, **H Kim** (2020) "Bioleaching for the Removal of Arsenic from Mine Tailings by Psychrotolerant and Mesophilic Microbes at Markedly Continental Climate Temperatures" *Minerals*, 10(11), 972. JIF: 2.5.

48. E Duborská, K Szabó, M Bujdoš, H Vojtková, P Littera, E Dobročka, **H Kim**, M Urík (2020) "Assessment of Aspergillus niger Strain's Suitability for Arsenate-Contaminated Water Treatment and Adsorbent Recycling via Bioextraction in a Laboratory-Scale Experiment" *Microorganisms*, 8(11), 1668. JIF: 4.5.

49. S Ilyas, RR Srivastava, **H Kim***, HA Cheema (2020) "Hydrometallurgical recycling of palladium and platinum from exhausted diesel oxidation catalysts" *Separation and Purification Technology*, 248, 117029. JIF: 8.6.

50. RA Silva, J Park, S Ilyas, D Borja, H Zhao, M Urík, SO Rastegar, **H Kim*** (2020) "Biodegradation mechanism of arsenopyrite mine tailing with Acidithiobacillus ferrooxidans and influence of ferric supplements" *International Biodeterioration & Biodegradation*, 153, 105042. JIF: 4.8.

51. A Gomez-Flores, SK Solongo, GW Heyes, S Ilyas, **H Kim*** (2020) "Bubble− particle interactions with hydrodynamics, XDLVO theory, and surface roughness for flotation in an agitated tank using CFD simulations" *Minerals Engineering*, 152, 106368. JIF: 4.8.

52. SK Solongo, A Gomez-Flores, J You, S Choi, GW Heyes, S Ilyas, J Lee, **H Kim*** (2020) "Cationic collector conformations on an oxide mineral interface: Roles of pH, ionic strength, and ion valence" *Minerals Engineering*, 150, 106277. JIF: 4.8.

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159. Tong, M. Long, G., Jiang, X., and **Kim, H. N.** (2010) "Contribution of Extracellular Polymeric Substances on Representative Gram Negative and Gram Positive Bacterial Deposition in Porous Media" *Environmental Science and Technology* 44 (7) 2393-2399. JIF: 11.4.

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162. **Kim, H. N.**, Walker, S. L., and Bradford, S. A. (2010) "Macromolecule Mediated Transport and Retention of *Escherichia coli* O157:H7 in Saturated Porous Media" *Special Issue: Transport and Fate of Colloids and Microbes in Granular Aqueous Environments: Water Research* 44 (4) 1082-1093. JIF: 12.8.

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OTHER PUBLICATIONS

1. S Ilyas, RR Srivastava, S Jin, H Kim* (2023) "Liquid–liquid separation of copper and nickel ammine complexes using phenolic oxime mixture with tributyl phosphate" Geosystem Engineering 26(2), 58-66. ESCI, JIF=1.7
2. A Gomes-Flores, **H Kim*** (2021) "Perspectives on the concepts of futuristic mineral concentration using microscopic robots" *Geosystem Engineering* 24(5-6), 231-237. ESCI, JIF=1.7
3. J Park, RA Silva, S Choi, S Ilyas, **H Kim*** (2021) "Influence of Bacterial Attachment on Arsenic Bioleaching from Mine Tailings: Dependency on the Ratio of Bacteria-Solid Substrate" *Resources Recycling* 30(3), 30-40.
4. Seungwoo Lee, Chilsung Jeon, Eunseong Lee, Kyungmin Yoo, Junhyun Choi, **Hyunjung Kim*** (2016) "Selective Removal of Arsenic Compounds from the Contaminated Paddy Soil in China Using Froth Flotation Technique" *J. Korean Soc. Environ. Eng.*, 38(7), 343-352.
5. Borja, D., Lee, E., Silva, R. A., Kim, H., Park, J., and **Kim, H.*** (2015) "Column Bioleaching of Arsenic from Mine Tailings Using a Mixed Acidophilic Culture: A Technical Feasibility Assessment" *Journal of the Korean Institute of Resources Recycling*, 24(6), 69-74.
6. Yi, I.-G., Kang, J.-K., Kim, S.-B., **Kim, H.**, Han, Y., Eom, I.-C., Jo, E., and Park, S.-Y. (2014) "Mobility of Carbon Nanomaterials in Soil Media", *Journal of Korean Society of Environmental Engineers,* 36 (8) 588-595.
7. Park, J., **Kim, H.*,** and Park, J. (2012) "Characteristics of Thiol-Functionalized Mesoporous Silica and its Application to Silver and Cadmium Ion Removal" *International Journal of Environmental Science and Development,* 3, 81-85.
8. Yoo, K., and **Kim, H.*** (2012) "Development of Ammoniacal Leaching Processes; A Review", *Journal of Korean Institute of Resources Recycling,* 21 (5) 3-17.
9. Han, Y., **Kim, H.**, Shin, Y., Park, J., and Ko, J. (2009) "Silver Coating on the Porous Pellets from Porphyry Rock and Application to an Antibacterial Media", *Journal of the Korean Ceramic Society* 46 (1) 16-23.
10. Han, Y., **Kim, H.**, Park, Y., and Park, J. (2005) "Preparation and Characterization of Porous Filters from $Ca(OH)_2$ and $CaCO_3$ for SO_2 Removal in Dry-FGD Process", *Journal of the Korean Industrial and Engineering Chemistry* 16 (6) 772-777.
11. Han, Y., **Kim, H.**, and Park, J. (2004) "Characteristics of NOx Reduction Using V_2O_5-TiO_2 Catalyst Coated on Ceramic Foam Filters", *Journal of Korean Society for Atmospheric Environment* 20 (6) 773-781.
12. Lee, K., Park, J., and **Kim, H.** (2004) "Preparation of CaO-Porous Materials and Characteristics of SO_X Removal", *Journal of Korean Society for Atmospheric Environment* 20 (2) 153-159.
13. Park, J., **Kim, H.**, and Lee, J. (2001) "Preparation of Macroporous Pellet from Industrial Waste Flyash by Foaming Method", *Geosystem Engineering* 4 (4) 112-116. ESCI, JIF=1.7

Patents

- "Processing of red mud for the recycling of major elements as value-added products", 10-2023-0083874, Korea
- "Bio-mediated solvo-chemical extraction of rare earth metals from phosphate-bearing monazite ores", PCT/KR2023/009754
- "Recycling of platinum-group metals from spent catalytic converters using bio-cyanide and ionic liquid as extraction media", PCT/KR2023/012145
- "Novel Integrated Process for Recycling of Critical Metals from Printed Circuit Boards", PCT/KR2021/004603
- "Recovery Method of Residual Metals via Hydrometallurgical Treatment of Electroplating Solution", PCT/KR2020/005414
- "Critical Metal Recovering Method from Waste/Discarded Printed Circuit Boards", 10-2243077, Korea
- "Critical Metal Recovering Method from Exhausted Lithium Ion Batteries", 10-2137174, Korea
- "Recovery Method of Residual Metals via Hydrometallurgical Treatment of Electroplating Solution", 10-2143162, Korea
- "Method for preparing an aspect ratio-controllable bullet-like silica colloid, and bullet-like silica colloid therefrom", 10-2255227, Korea
- "Method for Analysing Surface Area and Micropore Size Distribution of Shale Gas Reservoirs", 1016853090000, Korea
- "Water Treatment Method using Ultrasonic Wave", 1817010, Korea.
- "Flotation Process of the Copper Oxide Ores using Nonionic Polymer" 1765897, Korea
- "Method for recycling Heavy Metals Contaminated Particles", 10-1709716, Korea
- "Method for Manufacturing Titanium Dioxide Catalyst from Natural Ilmenite", 10-1792333, Korea
- "Method for Preparing Porous Sorbent for Sewage Sludge Incineration Gas", 1018337750000, Korea
- "Synthetic Method of Mesoporous Silica", 1802987, Korea
- "Method for Preparing Spherical Ceramic Foam and Spherical Ceramic Foam Prepared by the Same", 10-1366923, Korea
- "Manufacturing Method of Porous Ceramic Pellets by Using Double Emulsion Method", 0430477, Korea
- "Manufacturing Method of Porous Ceramic Filter for Dust Collection", 0430478, Korea

Research Projects

- "Froth Flotation Separation towards a Green Future Using Bio-collectors", (PI, $90,000) funded by the Korea Institute of Energy Technology Evaluation and Planning (Apr. 2022-Mar. 2025).
- "Lateriate Beneficiation Process Development", (PI, $350,000) funded by the National Research Foundation of Korea (Apr. 2022-Dec. 2025).
- "A Study on the Environmental Transport Characteristic of the Manufactured Tire Wear Particles", (PI, $78,300) funded by the National Institute of Environmental Research (May. 2021-Dec. 2021).
- "Attachment Behavior of Nanoplastics at Sediment-Water Interfaces in Freshwater Environments", (PI, $50,000) funded by the National Institute of Environmental Research (Apr. 2020-Nov. 2020).
- "A Fundamental Study on the Analysis of Relationship between the Nanoscale Roughness of Solid Substrate and the Fate and Transport of Colloidal Particles", (PI, $300,000) funded by the National Research Foundation of Korea (Mar. 2020-Feb. 2022).
- "Novel Green Technology for Rare and Critical Metal Extraction by Integrating Biotechnology with Solvo-chemical Approach", (PI, $170,000) funded by the National Research Foundation of Korea (Sep. 2019-Dec. 2021).
- "Effects of microbial extracellular metabolites and bio-transformation processes on mobility of manganese, iron and silicon from natural and synthetic solid phases", (PI, $10,000) funded by the National Research Foundation of Korea (Korea-Slovakia International Research Network Development Project) (Oct. 2018-Feb. 2020).
- "Development of Treatment Technology for Complex Copper Ores (Low-grade, and Sulfide/Oxide Complex Ores", (PI, $385,000) funded by the Ministry of Trade, Industry & Energy (Oct. 2014-Feb. 2019).
- "Development of a Model for Predicting the Fate and Transport Behavior of Nanomaterials (SiO_2, ZnO) with Different Solubility in Soli Environment", (PI, $150,000) funded by the National Research Foundation of Korea (Jun. 2015-May. 2018).

- "A Study on the modeling for the interaction between bubble and sulfide minerals" (PI $40,000) funded by the Korean Institute of Geoscience and Mineral Resources (Jan. 2017-Nov. 2017).
- "Feasibility test of heavy metal removal from Chinese contaminated soils using froth flotation", (PI, $33,000) funded by the JIU Co., (Jan. 2017-May. 2017).
- "Synthesis and characterization of functional nanofibers for recovery of dissolved rare-metal ion", (PI $35,000) funded by the National Research Foundation of Korea (Korea-US Collaborative Research Project) (Dec. 2015-Nov. 2016).
- "A Study on Surfaces Properties of Metallic Ores: Oxidation-Reduction Characteristics of Copper, Lead, and Zinc Minerals", (PI $50,000) funded by the Korean Institute of Geoscience and Mineral Resources (Dec. 2015-Nov. 2016).
- "Optimization of Continuous Bioleaching Tank for Recycling Contaminated Mine Tailings with Concentrated Heavy Metals", (PI, $110,000) funded by the Mine Reclamation Corporation (Aug. 2014-Dec. 2016).
- "Fabrication of Mineral Particles with Different Shape Index and Characteristic of Attachment and Detachment on Bubble", (PI, $10,000) funded by the Korea Foundation for the Advancement of Science and Creativity (Jun. 2015-Nov. 2015).
- "Development of the Automatic Concentration Technology for Recovery of Valuable Metals from small waste electronic appliances", (Participant, $2,000,000) funded by the Korea Institute of Energy Technology Evaluation and Planning (July 2011-June 2016).
- "Characteristics, Fate, and Transport of Carbon-Based Nanomaterials in the Environment", (PI, $190,000) funded by the National Institute of Environmental Research (May. 2014-Dec. 2014).
- "A Study on the Characteristics of Bubble-Particle Detachment by a Force Balance in Flotation", (PI, $22,000) funded by the JIU Corporation (Dec. 2014-Dec. 2014).
- "Development of Bioleaching Technology for Arsenic Removal", (PI, $140,000) funded by the Mine Reclamation Corporation (Apr. 2012-Nov. 2014).
- "Aggregation and Dispersion Characteristics of Zinc Oxide Nanomaterials in Aquatic Environment", (PI, $12,000) funded by the Doosan Yonkang Foundation of Korea (Dec. 2013-Nov. 2014).
- "Fate, Transport, and Toxicity of Zinc Oxide Nanomaterials in Soil Environment: Effect of Natural Organic Matter and Biofilm", (PI, $100,000) funded by the National Institute of Environmental Research (Apr. 2014-Nov. 2014).
- "Transport and Retention Behavior of Zinc Oxide Nanomaterials in Soil Environment: Effect of Sand Metal Oxides and Clay Particles", (PI, $50,000) funded by the National Institute of Environmental Research (Apr. 2014-Nov. 2014).
- "Inactivation of Pathogenic Microorganisms Using High Voltage Pulse Technique", (PI, $160,000) funded by the National Research Foundation of Korea (Sept. 2010-Aug. 2013).
- "Identifying the Mechanism for Fate and Removal of Pathogenic Bacteria", (PI, $150,000) funded by the National Research Foundation of Korea (May 2011-Apr. 2014).
- "A Study on the Solid-Liquid Interfacial Phenomena for Arsenic Removal from Complex Metallic Ores", (PI, $40,000) funded by the Korea Institute of Geoscience and Mineral (Mar. 2013-Nov. 2013).
- "Influence of Interfacial Energy of Minerals on the Pore Size of Ceramic Foams", (PI, $10,000) funded by the Korea Foundation for the Advancement of Science and Creativity (May. 2012-Oct. 2012).
- "A Study on Solid-Liquid Interface Properties for Improving Floatability of Oxide Minerals", (PI, $40,000) funded by the Korea Institute of Geoscience and Mineral (Mar. 2012-Nov. 2012).
- "A Fundamental Study on Improving Flotation Efficiency of Oxide Copper-Cobalt Ores", (PI, $30,000) funded by the Korea Institute of Geoscience and Mineral (Mar. 2011-Nov. 2012).
- "Development of Gravity Concentration Technology for Reducing the Amount of Heavy Metals in Tailing Slime", (PI, $20,000) funded by the Mine Reclamation Corporation (Sept. 2011-Nov. 2011).
- "A Fundamental Study for Metal Recovery Using Microorganisms", (PI, $20,000) funded by the Chonbuk National University (Apr. 2010-Mar. 2011).

Professional Service

- Associate Editor, *Critical Reviews in Environmental Science and Technology* (SCIE, IF 12.6)
- Associate Editor, *Journal of Environmental Quality* (SCIE, IF=3.866, 2017-2022)
- Subject Editor, *International Journal of Minerals, Metallurgy, and Materials* (SCIE, IF=4.8)
- Associate Editor, *Geosystem Engineering* (ESCI, JIF=1.7)

- Associate Editor, *Environmental Advances* (Elsevier)
- Associate Editor, *Minerals and Mineral Materials* (OAE Publishing Inc.)
- Guest Editor (2019-2020), Special Issue of Surface Chemistry in Mineral Processing and Extractive Metallurgy. In. *Minerals* (SCIE, IF=2.5)
- Guest Editor (2020), Special Issue of Nanotechnology Challenge: Safety and Safer Design of Nanomaterials. In:. *Applied Sciences* (SCIE, IF=2.7)
- Guest Associate Editor (2020), Special Issue of Advances in Pollutant Transport in Critical Zone Environments. In. *Frontiers in Water* (ESCI, JIF=2.9)
- Editorial Board, *Minerals* (SCIE, IF=2.7)
- Editorial Board (Direct of International Board), *Journal of the Korean Institute of Resources Recycling*
- Advisory Member, *Korea Mine Reclamation Corp.*
- Program Committee (Chair), *Industrial Minerals & Aggregates Division (IMAD) Division*, *Society for Mining, Metallurgy and Exploration (SME 2018)*
- Technical Committee (Vice chair), *Industrial Minerals & Aggregates Division (IMAD) Division*, *Society for Mining, Metallurgy and Exploration (SME 2017)*
- Program Committee (Co-chair), *Industrial Minerals & Aggregates Division (IMAD) Division*, *Society for Mining, Metallurgy and Exploration (SME 2016)*
- New Assessor, *Australian Research Council (ARC)*
- Technical Committee, *2012 3rd International Conference on Environmental Engineering and Applications (ICEEA 2012)*
- Technical Program Committee, *2015 International Conference on Materials Chemistry and Environmental Protection (MEEP 2015)*
- Reviewer, *African Journal of Environmental Science and Technology*, *African Journal of Pharmacy and Pharmacology*, *American Journal of Environmental Engineering*, *Biofouling*, *Chemical Engineering Journal*, *Colloids and Surfaces A: Physicochemical and Engineering Aspects, Colloids and Surfaces Biointerfaces*, *Desalination and Water Treatment*, *Earth Sciences, Environmental Engineering and Management Journal, Environmental Pollution*, *Environmental Science and Pollution Research*, *Environmental Science and Technology*, *Environmental Science: Processes & Impacts*, *FEMS Microbiology Ecology*, *Geosystem Engineering*, *Hydrological Processes*, *Hydrometallurgy*, *Industrial and Engineering Chemistry Research*, *International Journal of Environmental Monitoring and Analysis*, *International Journal of Hydrogen Energy*, *International Journal of Materials and Chemistry*, *International Journal of Metallurgical Engineering*, *International Journal of Mineral Processing*, *International Journal of Mining Engineering and Mineral Processing*, *Journal of Contaminant Hydrology*, *Journal of Environmental Sciences*, *Journal of Environmental Quality*, *Journal of Inorganic Materials*, *Journal of Materials Cycles and Waste Management*, *Journal of Materials Science and Technology*, *Journal of Nanoscience and Nanotechnology*, *Journal of the Korean Society for Geosystem Engineering*, *Journal of the Taiwan Institute of Chemical Engineers*, *Journal of Water Resources and Ocean Science*, *Journal of Zhejiang University-Science*, *Langmuir*, *Mineral Engineering*, *Scientific Reports*, *Separation and Purification Technology*, *Science of the Total Environment*, *Water Research, and so on.*
- Reviewer, *Book Chapter, Book Title: Biotechnology of Extremophiles: Advances and Challenges (Series Title: Grand Challenges in Biology and Biotechnology)*
- External Committee (Ph.D. thesis evaluation): University of Agriculture, Faisalabad (Pakistan, 2019)
- External Committee (Research proposal evaluation): The executive government agency of National Science Centre (Poland, 2018), The Chilean National Science and Technology Commission (Chile, 2016 & 2020))
- General Committee (section-chair), The Green Society of Hyundai Motor's Chung Mong-koo Foundation (2023)

Professional Affiliations

- Society for Mining, Metallurgy and Exploration (SME)
- American Chemical Society (ACS)
- American Geophysical Union (AGU)
- American Institute of Chemical Engineers (AIChE)
- European Geosciences Union (EGU)
- Association of Environmental Engineering and Science Professors (AEESP)

- The Korean Institute of Resources Recycling (KIRR)
- Korean Society of Soil and Groundwater Environment (KoSSGE)
- The Korean Society of Environmental Engineers (KSEE)
- The Korean Society for Mineral and Energy Resources Engineering (KSMER)