

Curriculum Vitae



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Education	2003. Ph.D., Chemical & Biomolecular Eng., KAIST 1999, M.Sc., Chemical Engineering, KAIST 1997, B.S., Chemical Engineering, KAIST
Experiences	2016.04 – date: Full Professor @ Chonbuk Natl Univ. 2015.11 – date: Director, Soil Environ Research Center 2012.03 – 2016.03: Associate Professor @ Chonbuk Natl Univ. 207.08 – 2018.08: Visiting Prof. @ University of Alberta, Canada 2011.1 – 2011.12: Visiting Research Prof. @ Northeastern University, USA 2004.9 – 2012.2: Assistant & Associate professor @ KIT 2004.4 - 2004.8: Senior Researcher @ RIST 2003.9 – 2004.3: Post-Doc @ KAIST 2000. 6 - 2001. 4: Univ. of Loughborough(UK), Visiting Researcher 2008.8: 7 th Symposium on Electrokinetic Remediation, Co-Chair 2008.8-2009.9: Invited Editor, Separation Science and Technology for Electrokinetic Remediation special issue

Academic Society 2014 – date: Coordinating editor and Editorial board member,
Environmental Geochemistry and Health (SCIE)
2012 – date: Topical Editor, Environmental Engineering
Research(SCIE)
2017 – date: Associate Editor, Korean J. Chem. Eng.(SCIE)
2017 – date: Submission Editor, Journal of Soils and Sediments(SCIE)
2018 – date: Associate Editor, Energy & Environment(SSCI)
2002 – date: Kor. Soc. Soil & G.W. Environ., Editorial Board
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Research Interests Electrokinetic Remediation of Metal-Contaminated Soil
Electrochemical Restoration of Saline Soil
Adsorption of Arsenic onto Metal Oxides
Changes on Fractionation of Metal during Remediation
Novel Adsorbent for Metal including Arsenic

International Journal Papers

* means corresponding author

1. D Choi, J.-I. Oh, K. Baek, J. Lee, EE Kwon, Compositional Modification of Products from Co-Pyrolysis of Chicken Manure and Biomass by Shifting Carbon Distribution from Pyrolytic Oil to Syngas Using CO₂, Energy, In press (2018)
2. JM Jung J-I Oh, K.Baek, J.Lee, E.E. Kwon, Biodiesel production from waste cooking oil using biochar derived from chicken manure as a porous media and catalyst, Energy Conversion and Management 165, 628-633 (2018)
3. T Lee, JI Oh, K.Baek, YF Tsang, KH Kim, EE Kwon, Compositional modification of pyrogenic products using CaCO₃ and CO₂ in the thermolysis of polyvinyl chloride (PVC), Green Chemistry, 20, 1583-1593 (2018)
4. JC Lee, K.Baek, HW Kim, Semi-continuous operation and fouling characteristics of submerged membrane photobioreactor(SMPBR) for tertiary treatment of livestock wastewater, J. Clean Prod. 180, 244-251 (2018)
5. L Wang, F Zhou, X Fang, DCW Tsang, CS Poon, Z Leng, K. Baek, A novel type of controlled low strength material derived from alum sludge and green materials, Construction and Building Materials 165, 792-800 (2018)
6. GS Yoon, SM Park, H. Yang, DCW Tsang, Ds Alessi, **K Baek***, Selection criteria for oxidation method in total organic carbon measurement, Chemosphere 199, 453-358 (2018)
7. EK Jeon, S. Ryu, SW Park, L. Wang, DCW Tsang, **K Baek***, Enhanced adsorption of arsenic onto alum sludge modified by calcination, J. Clean Prod. 176, 54-62 (2018)
8. JC Yoo, J. Beiyuan, L. Wang, DCW Tsang, **K Baek***, NS Bolan, YS Ok, XD Li, A combination of ferric nitrate/EDDS-enhanced washing and sludge-derived biochar stabilization of metal-contaminated soil, Sci. Total Environ. 616, 572-582 (2018)
9. J. Beiyuan, AYT Lau, DCW Tsang, W Zhang, CM Kao, K.Baek, YS Ok, XD Li, Chelant-enhanced washing of CCA-contaminated soil: Coupled with selective dissolution or soil stabilization, Sci. Total Environ. 612, 1463-1472 (2018)
10. S. Kwak, JC Yoo, DH Moon, **K Baek***, Role of clay minerals on reduction of Cr(VI), Geoderma 32, 1-5 (2018)
11. S. Kwak, JC Yoo, **K Baek***, Synergistic and inhibitory reduction of Cr(VI) by montmorillonite, citric acid, and Mn(II), J. Soils Sediments 18(1), 205-210 (2018)
12. JC Yoo, SM Park, GS Yoo, DCW Tsang, **K Baek***, Effects of lead mineralogy on soil washing enhanced by ferric salts as extracting and oxidizing agents, Chemosphere 185, 501-508 (2017)
13. JS Lee, SM Park, EK Jeon, **K Baek***, Selective and Irreversible Adsorption Mechanism of Cesium on Illite, Applied Geochemistry, 85, 188-193(2017)
14. P. Jeon, SM Park, **K Baek***, Adsorption and photocatalytic activity of biochar with graphitic carbon nitride (g-C₃N₄), J. Taiwan Inst. Chem. Eng. 77, 244-249 (2017)
15. SS Chen, JS Taylor, K Baek, E Khan, DCW Tsang, YS Ok, Sustainability likelihood of remediation options for metal-contaminated soil/sediment, Chemosphere 174, 421-427 (2017)
16. SY Shin, SM Park, **K Baek***, Soil moisture could enhance electrokinetic remediation of arsenic-contaminated soil, Environ Sci Pollut Res, 24(10), 9820-9825(2017)
17. P Jeon, SM Park, **K Baek***, Controlled release of iron for activation of persulfate to oxidize orange G using iron anode, Korean J Chem Eng, 34(5), 1305-1309 (2017)
18. TS Kwon, JY Lee, JS Yang, K.Baek, One-dimensional column and three-dimensional box flushing of silicone emulsion-enhanced remediation for chlorinated solvent contaminated soils, Korean J. Chem. Eng. 34(3), 741-716 (2017)
19. SR Ryu, EK Jeon, **K Baek***, Adsorption of As (III) and As (V) in groundwater by Fe-Mn binary oxide-impregnated granular activated carbon (IMIGAC), J Taiwan Inst Chem Eng, 72, 62-69 (2017)
20. SR Ryu, EK Jeon, **K Baek***, A combination of reducing and chelating agents for electrolyte conditioning in electrokinetic remediation of As-contaminated, J Taiwan Inst Chem Eng, 70, 252-259 (2017)

21. JC Lee, EJ Kim, **K Baek***, Synergistic effects of the combination of oxalate and ascorbate on arsenic extraction from contaminated soils, *Chemosphere*, 168, 1439-1446 (2017)
22. JC Yoo, C Lee, JS Lee, **K Baek***, Simultaneous application of chemical oxidation and extraction processes is effective at remediating soil co-contaminated with petroleum and heavy metals, *J. Environ. Manage.* 186, 314-319 (2017)
23. SM Park, SW Lee, PY Jeon, **K Baek***, Iron Anode-Mediated Activation of Persulfate, *Water, Air & Soil Pollut* 227(12) No.:462 (2016)
24. JC Yoo, YJ Shin, EJ Kim, JS Yang, **K Baek***, Extraction mechanism of lead from shooting range soil by ferric salts, *Process Safety Environ Prot* 103, 174-182 (2016)
25. J. Beiyuan, DCW Tsang, YS OK, W Zhang, X Yang, K Baek, X-D Li, Integrating EDDS-enhanced washing with low-cost stabilization of metals-contaminated soil from an e-waste recycling site, *Chemosphere* 159, 426-432 (2016)
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27. SY Shin, SM Park, **K Baek***, Electrokinetic removal of As from soil washing residue, *Water, Air & Soil Pollut.* 227(7), No:223 (2016).
28. EJ Kim, EK Jeon, **K Baek***, Role of reducing agent in extraction of arsenic and heavy metals from soils by use of EDTA, *Chemosphere* 152, 274-283 (2016)
29. JC Lee, EJ Kim, HW Kim, and **K Baek***, Oxalate-based remediation of arsenic bound to amorphous Fe and Al hydrous oxides in soil, *Geoderma* 270, 76-82 (2016)
30. DH Moon, JW Park, A Koutsospyros, KH Cheong, YY Chang, K Baek, R Jo, JH Park, Assessment of soil washing for simultaneous removal of heavy metals and low-level petroleum hydrocarbons using various washing solutions, *Environ. Earth Sci.* 75(1). No:884 (2016)
31. BS Kim, HW Lee, SH Park, K Baek, JK Jeon, HJ Cho, SC Jung, SC Kim, YK Park, Removal of Cu²⁺ by Biochars derived from green macroalgae, *Environ. Sci. Pollut. Res.* 23(2), 985-994 (2016)
32. YJ Shin, SM Park, JC Yoo, CS Jeon, SW Lee, and **K Baek***, A new approach for remediation of As-contaminated soil: ball mill-based technique. *Environ. Sci. Pollut. Sci.* 23(4), 3963-3970 (2016)
33. KJ Kim, K. Baek, SW Ji, YW Choeng, GJ Yom, and A. Jang, Study on electrocoagulation parameters (current intensity, pH and electrode distance) for removal of fluoride from groundwater, *Environ. Earth Sci.* 75:45 (2016)
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35. DH Moon, M Wazne, KH Cheong, K Baek, YS Ok, JH Park, Stabilization of As-, Pb-, and Cu-contaminated soil using calcined oyster shells and steel slag, *Environ. Sci. Pollut. Res.* 22(14), 11162-11169 (2015)
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48. WS Kim, JC Yoo, EK Jeon, JS Yang, **K Baek***, Stepwise sequential extraction of As-, Cu-, and Pb-Contaminated Paddy Soil, *Clean-Soil, Air, Water* 42(12) 1785-1789 (2014)
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50. J.S. Yang, M.J. Kim, J. Choi, K. Baek, E.J. O'Loughlin, The transport behavior of As, Cu, and Pb during electrokinetic remediation of a contaminated soil using electrolyte conditioning, *Chemosphere* 117, 79-86 (2014)
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54. DH Kim, Y. Yoon, **K Baek***, J. Han, N. Her, Occurrence of perchlorate in rice from different areas in the Republic of Korea, *Environ. Sci. Pollut. Res.* 21, 1251-1257 (2014)
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61. JC Yoo, CD Lee, JS Yang, **K.Baek***, Extraction Characteristics of Heavy Metals from Marine Sediments, *Chem. Eng. J.* 228, 688-699.
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65. SU Jo, DH Kim, JS Yang, **K.Baek***, Pulse-Enhanced Electrokinetic Restoration of Sulfate containing saline greenhouse soil, *Electrochim. Acta*, 86 57-62 (2012)
66. YH Kim, DH Kim, HB Jung, BR Hwang, SH Ko and **K.Baek***, Pilot Scale Ex-Situ Electrokinetic Remediation of Arsenic-Contaminated Soil, *Sep. Sci. Technol.* 47(14-15) 2230-2234 (2012)
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International Conferences (Since 2005~)

1. PY Jeon, ME Lee, K Baek, Adsorption and photocatalytic activation using a biochar including graphitic carbon nitride, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
2. EK Jeon, K Baek, A study on reuse of washing solution from heavy metals contaminated soil washing residue, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
3. SJ Kwak, K Baek, Influence of Mn(II), citric acid, and clay mineral on reduction of Cr(VI), 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
4. GS Yoon, K Baek, Influence of chemical structure on oxidation of organic matters, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
5. SM Park, JS Lee, K Baek, Adsorption characteristics of Cs onto soils, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
6. JS Lee, SM Park, K Baek, Adsorption mechanism of Cs on the clay minerals: reversible and irreversible adsorption, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016
7. K Baek, Fractionation and Mineralogy-Based Remediation Strategy for remediation of metals-contaminated site, 3rd International Conference on Contaminated Land, Ecological Assessment and Remediation, Taipei, Taiwan, 20-27 November, 2016 (Invited talk)
8. PY Jeon, ME Lee, HW Kim, SW Kim, K Baek, Biochar derived from sewage sludge for nutrient removal, Asia Pacific Biochar Conference 2016, Gangwon, Korea, 19-23

October 2016 (Invited talk)

9. K Baek, JS Lee, SM Park, Irreversible fixation of Cs on clay minerals, 13th International Conference on Protection and Restoration of the Environment-PRE XIII, Mykonos island, Greece, 3- 8 July, 2016.
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12. PY Jeon, SM Park, K Baek, Electrochemical activation of persulfate to remove azo dye, *251st American Chemical Society National Meeting & Exposition*, San Diego, USA, 13-17 March 2016.
13. EK Jeon, SR Ryu, K Baek, Adsorption characteristics of As(III) and As(V) onto modified alum sludge by calcination process, *251st American Chemical Society National Meeting & Exposition*, San Diego, USA, 13-17 March 2016.
14. JC Yoo, GS Yoon, K Baek, Extraction characteristics of Pb using ferric: Mineralogical approach, *251st American Chemical Society National Meeting & Exposition*, San Diego, USA, 13-17 March 2016.
15. S Kwak, JC Yoo, K Baek, Role of clay minerals on Cr(VI) reduction, *251st American Chemical Society National Meeting & Exposition*, San Diego, USA, 13-17 March 2016.
16. SM Park, SJ Kwak, K Baek, Selective recovery of dissolved metals from acid mine drainage via enhanced oxidation and electrochemical reaction, 3rd Water Research Congress, Shenzhen, China, 11-14 January 2015
17. JS Lee, SM Park, K Baek, Binding mechanisms of Cs on clay minerals, 2015 International Chemical Congress Pacific Basin Societies, 10-15 December 2015
18. K Baek, Current status and perspectives of electrokinetic remediation, *13th International Conference on the Biogeochemistry of Trace Elements*, Fukuoka, Japan, 12-16 July, 2015. (Invited talk)
19. JC Yoo, YJ Shin, K Baek, Ferric chloride-based washing process for the remediation of lead-contaminated soil, *13th International Conference on the Biogeochemistry of Trace Elements*, Fukuoka, Japan, 12-16 July, 2015.
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 38. SW Lee, SM Park, K Baek, Electrochemical activation of persulfate using iron anode for oxidation of phenolic compounds, *2013-Sustainable Approaches to Remediation of Contaminated Land in Europe*, Amsterdam, The Netherlands, 21-24 October 2013
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