Professor WANG Shengsen

College	College of Environmental Science & Engineering
Current Position	Professor
Types of Tutor	Doctoral Tutor
Language	Chinese/English
Education	Ph.D. in Soil and Water Sciences,University of Florida, 2014 M.S. in Soil Science,Shandong Agricultural University, 2008 B.S. Soil Science and Plant Nutrition, Shandong Agricultural University, 2005
Research Interests	Biochar technology, nanotechnology, wastewater treatment, heavy metal remediation in soil: 1) Environmental nanotechnology for soil and water remediation, i.e., preparation and environmental applications of metal oxides, ferrite, layered double hydroxides, and zerovelanet iron (ZVI); 2) Thermal conversion of natural hematite to zerovalent iron in presence of biomass: The phase transformation of hematite, role of biomass as a reducing agent, the importance of electric conductivity of biochar to facilitate electron transfer of ZVI for removal trace metals; 3) Biochar preparation for sustainable environment & optimization of biochars and carbonaceous materials for removal of heavy metals in wastewater and soil; 4) Evaluation of biochar as a safe and value-added solution for hyperaccumulating plant disposal: A case study of Phytolacca acinosa, Roxb. (Phytolaccaceae); 5) Assessment of common surfactants on preparation of nanoparticles and their adsorptive and photocatalytic performance for removal of heavy metals and organic dyes.
Selected Publications	1. The contribution of functional groups and carbon matrix in biochar onelectron transfer from nanoscale zero-valent iron to chromate in soil (No

	41977117). The National Natural Science Foundation of China. US$ 100,000, 2021.01-2023.12, PI 2. Coupling between pore size of biochar (BC) and particle size of nanosized zero valent iron (nZVI): Understanding the mechanisms of arsenic and chromium removal from soil by BC/nZVI composites (No 41771349). The National Natural Science Foundation of China. US$ 100,000, 2018.01-2021.12, PI 3. The nanoscaled zero valent iron with tunable size: Synthesis and its use in soil remediation. Key Laboratory of Key Laboratory of Original Agro-Environmental Pollution Prevention and Control, Ministry of Agriculture/Tianjin Key Laboratory of Agro-environment and Safe-product, US$ 15,000, 2017.7-2020.6, PI 4. The biochar supported zero valent iron and iron oxide for removal of heavy metals and organic dyes in wastewater. Lvyangjinfeng Talent Program of Yangzhou City. US$5,000, 2017.1-2020.12, PI 5. The metal oxides modified biochars for heavy metal remediation in aqueous solution and contaminated soil. Startup Funds of Yangzhou University. US$ 25,000, 2016.6-, PI 6. Several industry funded projects, US$ 10,000, 2018-2019, PI 7. The effects of biochars on transformation and bioavailability of micronutrients in soil (No 41977085). The National Natural Science Foundation of China. US$92,000, 2020-2023, Co-PI 8. The effects of biochars on bioavailability of micronutrients in soil (No 31772394). (No 41771349). The National Natural Science Foundation of China. US$ 40,000, 2018-2019, Co-PI 9. The effects of biochar on bioavailability of soil micronutrients and potential mechanisms (No 31772394). The National Natural Science Foundation of China. US$ 40,000, 2018.01-2019.12, Co-PI 10. L. Meng, W. Yin, S. Wang, X. Wu, J. Hou, W. Yin, K. Feng, Y.S. Ok, X. Wang, Photocatalytic

	behavior of biochar-modified carbon nitride with enriched visible-light reactivity, Chemosphere, 239 (2019) 124713-124713. (citations 0) 11. S. Wang, M. Zhao, M. Zhou, Y.C. Li, J. Wang, B. Gao, S. Sato, K. Feng, W. Yin, A.D. Igalavithana, P. Oleszczuk, X. Wang, Y.S. Ok, Biochar-supported nZVI (nZVI/BC) for contaminant removal from soil and water: A critical review, Journal of Hazardous Materials, 373 (2019) 820-834. (citations 9) 12. S. Wang, M. Zhao, M. Zhou, Y. Zhao, Y.C. Li, B. Gao, K. Feng, W. Yin, Y.S. Ok, X. Wang, Biomass facilitated phase transformation of natural hematite at high temperatures and sorption of Cd2+ and Cu2+, Environment International, 124 (2019) 473-481. (citations 2) 13. W. Yin, D. Dai, J. Hou, S. Wang, X. Wu, X. Wang, Hierarchical porous biochar-based functional materials derived from biowaste for Pb(II) removal, Applied Surface Science, 465 (2019) 297-302. (citations 3) 14. B. Xie, Y. Jiang, Z. Zhang, G. Cao, H. Sun, N. Wang, S. Wang, Co-transport of Pb (II) and Cd (II) in saturated porous media: effects of colloids, flow rate and grain size, Chemical Speciation and Bioavailability, 30 (2018) 55-63. (citations 0) 15. Z. Ahmad, B. Gao, A. Mosa, H. Yu, X. Yin, A. Bashir, H. Ghoveisi, S. Wang, Removal of Cu(II), Cd(II) and Pb(II) ions from aqueous solutions by biochars derived from potassium-rich biomass, Journal of Cleaner Production, 180 (2018) 437-449. (citations 44) (Highly cited paper) 16. S. Wang, Y. Zhou, S. Han, N. Wang, W. Yin, X. Yin, B. Gao, X. Wang, J. Wang, Carboxymethyl cellulose stabilized ZnO/biochar nanocomposites: Enhanced adsorption and inhibited photocatalytic degradation of methylene blue, Chemosphere, 197 (2018) 20-25. (citations 14) 17. Y. Zhou, Y. Zhao, X. Wu, W. Yin, J. Hou, S. Wang, K. Feng, X. Wang, Adsorption and reduction of hexavalent chromium on magnetic greigite (Fe3S4)-CTAB: leading role of Fe(ii) and S(-ii), RSC Advances, 8 (2018) 31568-31574.

	(citations 1) 18. H. Zhu, Y. Zhou, S. Wang, X. Wu, J. Hou, W. Yin, K. Feng, X. Wang, J. Yang, Preparation and application synthesis of magnetic nanocomposite using waste toner for the removal of Cr(VI), Rsc Advances, 8 (2018) 27654-27660. (citations 1) 19. S. Wang, Y. Zhou, B. Gao, X. Wang, X. Yin, K. Feng, J. Wang, The sorptive and reductive capacities of biochar supported nanoscaled zero-valent iron (nZVI) in relation to its crystallite size, Chemosphere, 186 (2017) 495-500. (citations 11) 20. S. Wang, M. Zhao, Y. Zhao, N. Wang, J. Bai, K. Feng, Y. Zhou, W. Chen, F. Wen, S. Wang, X. Wang, J. Wang, Pyrogenic temperature affects the particle size of biochar-supported nanoscaled zero valent iron (nZVI) and its silver removal capacity, Chemical Speciation and Bioavailability, 29 (2017) 179-185. (citations 1) ,. 21. S. Han, H. Yu, T. Yang, S. Wang, X. Wang, Magnetic Activated-ATP@ Fe3O4 Nanocomposite as an Efficient Fenton-Like Heterogeneous Catalyst for Degradation of Ethidium Bromide, Scientific Reports, 7 (2017). (citations 5) 22. S. Wang, B. Gao, Y. Li, Y.S. Ok, C. Shen, S. Xue, Biochar provides a safe and value-added solution for hyperaccumulating plant disposal: A case study of Phytolacca acinosa Roxb. (Phytolaccaceae), Chemosphere, 178 (2017) 59-64. (citations 15) 23. S. Wan, S. Wang, Y. Li, B. Gao, Functionalizing biochar with Mg-Al and Mg-Fe layered double hydroxides for removal of phosphate from aqueous solutions, Journal of Industrial and Engineering Chemistry, 47 (2017) 246-253. (citations 56) 24. S. Wang, B. Gao, Y. Li, A.E. Creamer, F. He, Adsorptive removal of arsenate from aqueous solutions by biochar supported zero-valent iron nanocomposite: Batch and continuous flow tests, Journal of Hazardous Materials, 322 (2017) 172-181. (citations 91) (Highly cited paper) 25. Y. Wang, S. Wei, Y. Sun, W. Mao, T. Dang, W. Yin, S. Wang, X. Wang, Elevated ozone level

	affects micronutrients bioavailability in soil and their concentrations in wheat tissues, Plant Soil and Environment, 63 (2017) 381-387. (citations 26. T. Yang, L. Meng, S. Han, J. Hou, S. Wang, X. Wang, Simultaneous reductive and sorptive removal of Cr(VI) by activated carbon supported beta-FeOOH, RSC Advances, 7 (2017) 34687-34693. (citations 19) 27. J. Bai, H. Sun, X. Yin, X. Yin, S. Wang, A.E. Creamer, L. Xu, Z. Qin, F. He, B. Gao, Oxygen-Content-Controllable Graphene Oxide from Electron-Beam-Irradiated Graphite: Synthesis, Characterization, and Removal of Aqueous Lead Pb(II), ACS Applied Materials & Interfaces, 8 (2016) 25289-25296. (citations 17) 28. L. Xue, B. Gao, Y. Wan, J. Fang, S. Wang, Y. Li, R. Munoz-Carpena, L. Yang, High efficiency and selectivity of MgFe-LDH modified wheat-straw biochar in the removal of nitrate from aqueous solutions, Journal of the Taiwan Institute of Chemical Engineers, 63 (2016) 312-317. (citations 45) 29. Z. Ding, Y. Wan, X. Hu, S. Wang, A.R. Zimmerman, B. Gao, Sorption of lead and methylene blue onto hickory biochars from different pyrolysis temperatures: Importance of physicochemical properties, Journal of Industrial and Engineering Chemistry, 37 (2016) 261-267. (citations 59) 30. S. Wang, B. Gao, Y. Li, Enhanced arsenic removal by biochar modified with nickel (Ni) and manganese (Mn) oxyhydroxides, Journal of Industrial and Engineering Chemistry, 37 (2016) 361-365. (citations 29) 31. Z. Ding, X. Hu, Y. Wan, S. Wang, B. Gao, Removal of lead, copper, cadmium, zinc, and nickel from aqueous solutions by alkali-modified biochar: Batch and column tests, Journal of Industrial and Engineering Chemistry, 33 (2016) 239-245. (citations 126) (Highly cited paper) 32. A.E. Creamer, B. Gao, S. Wang, Carbon dioxide capture using various metal oxyhydroxide-biochar composites, Chemical

	Engineering Journal, 283 (2016) 826-832. (citations 40) 33. S. Wang, B. Gao, Y. Li, A.R. Zimmerman, X. Cao, Sorption of arsenic onto Ni/Fe layered double hydroxide (LDH)-biochar composites, RSC Advances, 6 (2016) 17792-17799. (citations 24) 34. S. Wang, B. Gao, A.R. Zimmerman, Y. Li, L. Ma, W.G. Harris, K.W. Migliaccio, Physicochemical and sorptive properties of biochars derived from woody and herbaceous biomass, Chemosphere, 134 (2015) 257-262. (citations 83) 35. S. Wang, B. Gao, Y. Li, A. Mosa, A.R. Zimmerman, L.Q. Ma, W.G. Harris, K.W. Migliaccio, Manganese oxide-modified biochars: Preparation, characterization, and sorption of arsenate and lead, Bioresource Technology, 181 (2015) 13-17. (citations 151) (Highly cited paper) 36. S. Wang, B. Gao, A.R. Zimmerman, Y. Li, L. Ma, W.G. Harris, K.W. Migliaccio, Removal of arsenic by magnetic biochar prepared from pinewood and natural hematite, Bioresource Technology, 175 (2015) 391-395. (citations 217) (Highly cited paper) 37. S. Wang, B. Gao, Y. Li, Y. Wan, A.E. Creamer, Sorption of arsenate onto magnetic iron-manganese (Fe-Mn) biochar composites, Rsc Advances, 5 (2015) 67971-67978. (citations 27) 38. X. Hu, Z. Ding, A.R. Zimmerman, S. Wang, B. Gao, Batch and column sorption of arsenic onto iron-impregnated biochar synthesized through hydrolysis, Water Research, 68 (2015) 206-216. (citations 191) (Highly cited paper)
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