



## 何春

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### 基本情况

何春，中山大学环境科学与工程学院，教授，博士生导师。2003年毕业于中山大学获得环境科学博士学位，2003-2004年在香港理工大学土木与结构工程系任研究助理，2004-2006年在日本国立产业技术综合研究所任日本学术振兴会JSPS研究员，2007年在香港理工大学土木与结构工程系任研究助理，2008年在中山大学环境科学与工程学院任职。近年来主要从事环境污染控制和资源化等研究领域，先后主持国家自然科学基金、教育部留学回国人员科研基金、教育部高等学校博士学科点基金、中央高校基本科研基金、广东省自然科学基金重大基础研究培育项目、广东省科技计划等多项项目。在 **Nano Today, Environ. Sci. Technol., Advanced Functional Materials, Adv. Mater., Applied Catalysis B, ACS Appl. Mater. Interfaces** 等国际学术刊物发表SCI收录论文100多篇，3篇论文入选ESI Top 1%高被引论文。申请中国发明专利15项，其中9项已授权。一些研究工作引起国际同行的重点关注，并作为Advanced Functional Materials封面论文。应Nova Science出版社邀请参编了“New Topics in Catalysis Research”等7部国外著作。多次应邀在国际学术大会上作学术报告，并且被Environ. Sci. Technol., Appl. Catal. B, Appl. Catal. A, Appl. Mater. Interfaces, J. Hazard. Mater., Chem. Eng. J., Desalination, Environmental Science: Nano等国际学术期刊邀请为论文审稿人。

### 联系方式

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欢迎具有环境工程、化学工程、材料科学、市政工程等学科背景的本科生、硕士、博士、博士后等科研人员加入课题组。欢迎邮件联系！

## 教育经历

2003年毕业于中山大学获环境科学博士学位

2003-2004年在香港理工大学土木与结构工程系任研究助理

2004-2006年在日本国立产业技术研究所任日本学术振兴会JSPS研究员

2007年1月至7月在香港理工大学土木与结构工程系任研究助理

## 工作经历

2007年10月-2008年11月在华南理工大学化学与化工学院任教

2008年12月-至今在中山大学环境科学与工程学院任教

## 讲授课程

1. «环境工程»
2. «环境工程概算»
3. «环境化学»
4. «环境监测与评价»
5. «仪器分析»
6. «专业英语»
7. «高等水处理技术»
8. «污染控制化学与工程»

## 科研方向

1. 水污染深度处理与回用技术
2. 大气污染控制与资源化技术
3. 环境功能材料及环境催化理论和技术
4. 固体废物资源化

## 科研项目

1. 国家自然科学基金面上项目(No. 52070195, 2021-2024), 项目负责人。
2. 国家自然科学基金面上项目(No. 21876212, 2019-2022), 项目负责人。
3. 国家自然科学基金面上项目(No. 51578556, 2016-2019), 项目负责人。
4. 国家自然科学基金面上项目(No. 20877025, 2009-2011), 项目负责人。
5. 国家自然科学基金项目 (No. 21273085, 2012-2015), 合作方项目负责人。
6. 广东省自然科学基金重大基础研究培育项目(2015A030308005, 2016-2019), 项目负责人。
7. 广东省自然科学基金项目(No. S2013010012927, 2013-2015), 项目负责人。
8. 广东省自然科学基金项目(No. S2011010001836, 2011-2013), 项目负责人。
9. 广东省自然科学基金项目 (No. 04011602, 2004-2007), 项目负责人。
10. 科技部中小企业创新基金(No. 10C26214414753, 2010-2012), 合作方项目负责人。
11. 教育部高等学校博士学科点专项科研基金 (No. 200805611015, 2009-2011), 项目负责人。
12. 教育部留学回国人员科研基金项目 (2009-2011), 项目负责人。
13. 中央高校基本科研业务费环境领域项目群基金 (2013-2015), 项目负责人。
14. 中央高校基本科研业务费重点培育项目(2010-2012), 项目负责人。
15. 日本学术振兴会博士后资助项目(No. P04568, 2004-2006), 项目负责人。

16. 广东省科技计划项目 (No.2014A020216009, 2014-2016), 项目负责人。
17. 广州科技局科学技术项目(No. 2010Z2-C1009, 2010-2012), 合作方项目负责人。

#### 获奖和社会兼职情况

1. 2020年中山大学“优秀硕士生导师”。
2. 2021年中山大学环境学院“我心目中的良师”。
3. 2020年中山大学环境学院“我心目中的良师”。
4. 2019年中山大学环境学院“我心目中的良师”。
5. 2018年中山大学环境学院“我心目中的良师”。
6. 2017年中山大学环境学院“我心目中的良师”。
7. 2021年度中国环境技术进步奖二等奖。
8. 2020年度广东省环境技术进步奖一等奖。
9. 中山大学科学道德与学风建设宣讲导师。
10. 第三届广州市人民政府应急管理专家。
11. 广州市越秀区环境保护局应急处置专家。
12. 巴塞尔公约亚太区域中心化学品和废物环境管理智库专家。

#### 代表性著作(\* 通讯联系人)

1. **He, C.\***, Gong, Y.B., Li, S.Z., Hu, L.L., Yang, Y.C., Sun, L.P., Shu, D\* (2014). Efficient electricity generation and degradation of organic pollutants in wastewater using Ag-BiOI photoactivated fuel cell, Chapter 9 in “Green Catalysts for Energy Transformation and Emission Control”, American Chemical Society, Washington, DC, USA, 149-164, (**Book Chapter**).
2. **He, C.\***, Zhang, Q., Yang, J. L., Xu, Z.C., Shu, D., Shan, C., Zhu, L.F., Liao, W.C., Xiong, Y. (2012) Visible-light-induced activity of AgI-BiOI composites for removal of organic contaminants from water and wastewater, Chapter in “Green Nanotechnology and the Environment”, American Chemical Society, Washington, DC (Book Chapter).
3. He, Z.Y., Hu, Y.M., Huang, Y.J., **He, C.\***, Tan, X.Q., Hu, L.L., Yang, W.J., Li, H.Y., Xu, J.R., Xia, D.H. and Shu, D.\* (2018). Performance of Membrane Filtration Combined Advanced Oxidation Process in Water Treatment and Mitigation of Membrane Fouling, Chapter 1 in “Membrane Bioreactors and Fouling: A Review and Directions for Research”, Nova Science Publishers, Inc., New York, pp. 1-44, ISBN: 978-1-53614-363-8 (Book Chapter).
4. Sharma, V.K., Ma, J., **He, C.**, Kim, H., Zboril. R. (2014). Ferrate(VI): A green molecule in odorous gas treatment, Chapter in “Green Catalysts for Energy Transformation and Emission Control”, American Chemical Society, Washington, DC, USA, 277-290 (**Book Chapter**).
5. Abou Asi, M., **He C.\***, Zhang, Q., Xu, Z.C., Yang, J.L., Zhu, L.F., Huang, Y.L., Xiong, Y., Shu, D. (2013) Photocatalytic reduction of CO<sub>2</sub> to hydrocarbons using carbon-based AgBr nanocomposites under visible light, Chapter 10 in “Green CO<sub>2</sub>: Advances in CO<sub>2</sub> Utilization”, Wiley & Sons, Inc., Hoboken, New Jersey, pp. 243-258 (Book Chapter).
6. Sharma, V.K., **He C.** (2013) Recent advances in ferrites as visible light photocatalysts for remediation of contaminants in water, Chapter 4 in “Environmental Chemistry for a Sustainable World (ECSW)”, volume 3. Springer (Book Chapter).
7. **He, C.**, Xiong, Y. and Zhu, X. H. (2007). Dependent-preparation characteristics and catalytic activity of two platinised TiO<sub>2</sub> films towards the oxidation of organic pollutants, Chapter 2 in “New Topics in Catalysis Research”, Nova Science Publishers, Inc., New York, pp. 33-49, 2007 (Book Chapter).

### 代表性论文(\* 通讯联系人)

1. Qu, W., Chen, C., Tang, Z.Y., Xia, D.H.\*, Ma, D.R., Huang, Y.J., **He, C.\***, Shu, D., Bin Han. Electron-rich/poor reaction sites enable ultrafast confining Fenton-like processes in facet-engineered BiOI membranes for reclaimed water purification, **Applied Catalysis B: Environmental**, 2022, 304: 120970.
2. **He, C.**, Liao, Y.H., Chen, C., Xia, D.H.\*, Wang, Y.Y., Tian, S.H., Yang, J.L.\*, Shu, D. Realizing a redox-robust Ag/MnO<sub>2</sub> catalyst for efficient wet catalytic ozonation of S-VOCs: Promotional role of Ag(0)/Ag(I)-Mn based redox shuttle, **Applied Catalysis B: Environmental**, 2022, 303: 120881
3. Zhao, H.N., Guan, X.Y., Zhang, F., Huang, Y.J., Xia, D.H.\*, Hu, L.L., Ji, X.Y., Yin, R.\*, **He, C.\***. Rational design of a bismuth oxyiodide (Bi/BiO<sub>1-x</sub>I) catalyst for synergistic photothermal and photocatalytic inactivation of pathogenic bacteria in water, **Journal of Materials Science & Technology**, 2022, 100: 110-119.
4. Qu, W., Zhao, H.N., Zhang, Q., Xia, D.H.\*, Tang, Z.Y., Chen, Q., **He, C.\***, Shu, D. Multifunctional Au/Ti<sub>3</sub>C<sub>2</sub> photothermal membrane with antibacterial ability for stable and efficient solar water purification under the full spectrum, **ACS Sustainable Chemistry & Engineering**, 2021, 9(34): 11372–11387.
5. Huang, Y.J., Luo, M.H., Li, S.Z., Xia, D.H.\*, Tang, Z.Y., Hu, S.Y., Ye, S.T., Sun, M.J., **He, C.\***, Shu, D. Efficient catalytic activity and bromate minimization over lattice oxygen-rich MnOOH nanorods in catalytic ozonation of bromide-containing organic pollutants: Lattice oxygen-directed redox cycle and bromate reduction, **J. Hazard. Mater.** 2021, 410: 124545.
6. Chen, X.X., Zhan, S.J, Chen, D.S., **He, C.**, Tian, S.H.\*, Xiong, Y. Grey Fe-CeO<sub>2</sub>-σ for boosting photocatalytic ozonation of refractory pollutants: Roles of surface and bulk oxygen vacancies, **Applied Catalysis B: Environmental** 2021, 286: 119928.
7. Yang, J.L., Huang, Y.J., Yun-Wen Chen, Xia, D.H.\*, Mou, C.Y. Hu, L.L., Zeng, J.W., **He, C.\***, Wong, P.K., Zhu, H.Y. Active site-directed tandem catalysis on CuO/V<sub>O</sub>-MnO<sub>2</sub> for efficient and stable catalytic ozonation of S-VOCs under mild condition, **Nano Today**, 2020, 35: 100944.
8. **He, C.**, Wang, Y.C., Li, Z.Y., Huang, Y.J., Liao, Y.H., Xia, D.H.\*, Lee, S.C. Facet engineered α-MnO<sub>2</sub> for efficient catalytic ozonation of odor CH<sub>3</sub>SH: Oxygen vacancy-induced active centers and catalytic mechanism, **Environ. Sci. Technol.** 2020, 2020, 54, 12771-12783.
9. Hu, L.L., Liao, Y.H., Xia, D.H.\*, Peng, F., Tan, L., Hu, S.Y., Zheng, C.S., Lu, X.L., **He, C.\***, Shu, D. Engineered photocatalytic fuel cell with oxygen vacancies-rich rGO/BiO<sub>1-x</sub>I as photoanode and biomass-derived N-doped carbon as cathode: Promotion of reactive oxygen species production via Fe<sup>2+</sup>/Fe<sup>3+</sup> redox. **Chemical Engineering Journal**, 2020 , 385: 183824.
10. Xia, D.H., Tang, Z.Y., Wang, Y.C., Yin, R.\*, He, H.J.W., Xie, X., Sun, J.L., **He, C.\***, Wong, P.K., Zhang, G. Piezo-catalytic Persulfate Activation System for Water Advanced Disinfection: Process Efficiency and Inactivation Mechanisms, **Chemical Engineering Journal**, 2020, 400: 125894.
11. Peng, F., Yin, R., Liao, Y.H., Xie, X., Jianliang Sun, Xia, D.H.\*, **He, C.\***. Kinetics and mechanisms of enhanced degradation of ibuprofen by piezo-catalytic activation of persulfate. **Chemical Engineering Journal**, 2020, 392: 123818.
12. Hu, L.L., Liao, Y.H., Xia, D.H.\*, **Zhang, Q.**, He, H.J.W., Yang, J.L., Huang, Y.J., Liu, H.D., Zhang, F., **He, C.\***, Shu, D. In-situ fabrication of AgI-BiOI nanoflake arrays film photoelectrode for efficient wastewater treatment, electricity production and enhanced recovery of copper in photocatalytic fuel cell, **Catalysis Today** 2020, 339: 379-390.

13. Yin, R.<sup>#</sup>, Hu, L.L.<sup>#</sup>, Xia, D.H.\*<sup>#</sup>, Yang, J.L., He, C.\*<sup>#</sup>, Liao, Y.H., Zhang, Q., He, J.\*. Hydroxylamine promoted Fe(III)/Fe(II) cycle on ilmenite surface to enhance persulfate catalytic activation and aqueous pharmaceutical ibuprofen degradation, **Catalysis Today** 2020, 358: 294-302.
14. He, H.J.W., Hu, L.L., Zeng, J.W., Huang, Y.J., He, C.\*<sup>#</sup>, Zhang, Q., Zhang, F., Shu, D.\*. Activation of persulfate by CuO-sludge derived carbon dispersed on silicon carbide foams for odorous methyl mercaptan elimination: Identification of reactive oxygen species, **Environmental Science and Pollution Research**, 2020, 27(2): 1224-1233.
15. Yi, H., Gao, A.M., Pang, X.K., Ao, Z.R., Shu, D.\*<sup>#</sup>, Deng, S.X., Yi, F.Y., He, C.\*<sup>#</sup>, Zhou, X.P., Zhu, Z.H. Preparation of single-atom Ag-decorated MnO<sub>2</sub> hollow microspheres by redox etching method for high-performance solid-state asymmetric supercapacitors, **ACS Applied Energy Materials**, 2020, 3(10): 10192-10201.
16. Xia, D.H.\*<sup>#</sup>, Hu, L.L., Wang, Y.C., Xu, B.H., Liao, Y.H., He, C.\*<sup>#</sup>, Ye, L.Q., Liang, X.L., Ye, Y.H., Shu, D. Immobilization of facet-engineered Ag<sub>3</sub>PO<sub>4</sub> on mesoporous Al<sub>2</sub>O<sub>3</sub> for efficient industrial waste gas purification with indoor LED illumination, **Applied Catalysis B: Environmental** 2019: 256: 117811.
17. Xia, D.H., Liu, H.D., Xu, B.H., Wang, Y.C., Liao, Y.H., Huang, Y.J., Ye, L.Q., He, C.\*<sup>#</sup>, Wong, P.K., Qiu, R.L.\*. Single Ag atom engineered 3D-MnO<sub>2</sub> porous hollow microspheres for rapid photothermocatalytic inactivation of E. coli under solar light, **Applied Catalysis B: Environmental** 2019: 245, 177-189.
18. Zhang, Q., Huang, Y.J., Xia, D.H.\*<sup>#</sup>, Hu, L.L., Li, P., Tan, L., Wang, Y.Y., He, C.\*<sup>#</sup>, Shu, D. Xie, X. High-performance water desalination of heteroatom nitrogen- and sulfur- codoped open hollow tubular porous carbon electrodes via capacitive deionization. **Environmental Science: Nano** 2019,6: 3359-3373.
19. Huang, Y.J. <sup>#</sup>, Yang, J.L.<sup>#</sup>, Hu, L.L., Xia, D.H.\*<sup>#</sup>, Zhang, Q., Liao, Y.H., Li, H.Y., Yang, W.J., He, C.\*<sup>#</sup>, Shu, D. Mycelial pellet-derived heteroatom-doped carbon nanosheets with three-dimensional hierarchical porous structure for efficient capacitive deionization, **Environmental Science: Nano** 2019, 6, 1430-1442.
20. Cheng, H.H., Yi, F.Y., Gao, A.M., Liang, H.F., Shu, D.\*<sup>#</sup>, Zhou, X.P., He, C.\*<sup>#</sup>, Zhu, Z.H. Supermolecule self-assembly promoted porous N, P co-doped reduced graphene oxide for high energy density supercapacitors, **ACS Appl. Energy Mater.** 2019, 2, 4084–4091.
21. Yin, R.<sup>#</sup>, Hu, L.L.<sup>#</sup>, Xia, D.H.\*<sup>#</sup>, Yang, J.L., He, C.\*<sup>#</sup>, Liao, Y.H., Zhang, Q., He, J.\*. Hydroxylamine promoted Fe(III)/Fe(II) cycle on ilmenite surface to enhance persulfate catalytic activation and aqueous pharmaceutical ibuprofen degradation, **Catalysis Today** 2019.
22. Liu, C., Gao, A.M., Yi, F.Y., Shu, D.\*<sup>#</sup>, Yi, H., Zhou, X.P., Hao, J.N.\*<sup>#</sup>, He, C., Zhu, Z.H. Anchoring ultrafine Co<sub>3</sub>O<sub>4</sub> grains on reduced oxide graphene by dual-template nanocasting strategy for high-energy solid state supercapacitor. **Electrochimica Acta**, 2019, 326: 134965.
23. Liu, C., Yi, F.Y., Shu, D.\*<sup>#</sup>, Chen, W.X., Zhou, X.P., Zhu, Z.H., Zeng, R.H., Gao, A.M.\*<sup>#</sup>, He, C.\*<sup>#</sup>, Li, X. In-situ N/S Co-doping three-dimensional succulent-like hierarchical carbon assisted by supramolecular polymerization for highperformance supercapacitors. **Electrochimica Acta**, 2019, 319: 410-422.
24. Li, S.Y., Gao, A.M., Yi, F.Y., Shu, D.\*<sup>#</sup>, Cheng, H.H., Zhou, X.P., He, C.\*<sup>#</sup>, Zeng, D.P., Zhang, F. Preparation of carbon dots decorated graphene/polyaniline composites by supramolecular in-situ self-assembly for high performance supercapacitors, **Electrochimica Acta** 2019, 297: 1094-1103.
25. Tian, S.H., Xu, S., Liu, J.T., He, C., Xiong, Y., Feng, P.Y. Highly efficient removal of both cationic and anionic dyes from wastewater with a water-stable and eco-friendly Fe-MOF via host-guest encapsulation, **Journal of Cleaner Production**, 2019, 239: 117767.



26. Lu, J., Sun, J.X., Chen, X.X., Tian, S.H.\*, Chen, D.S., He, C., Xiong, Y. Efficient mineralization of aqueous antibiotics by simultaneous catalytic ozonation and photocatalysis using  $\text{MgMnO}_3$  as a bifunctional catalyst, **Chemical Engineering Journal** 2019, 358: 48-57.
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30. Hu, L.L., He, H.J.W., Xia, D.H.\*, Huang, Y.J., Xu, J.R., Li, H.Y., He, C.\*, Yang, W.J., Shu, D., Wong, P.K. Highly efficient performance and conversion pathway of photocatalytic  $\text{CH}_3\text{SH}$  oxidation on self-stabilized indirect z-scheme  $\text{g-C}_3\text{N}_4/\text{I}_3^-/\text{BiOI}$ , **ACS Appl. Mater. Interfaces** 2018, 10 (22), 18693-18708.
31. Hu, L.L., Peng, F., Xia, D.H.\*, He, H.J.W., He, C.\*, Fang, Z.K., Yang, J.L., Tian, S.H., Sharma, V.K. Shu, D. Carbohydrates-derived nitrogen-doped hierarchical porous carbon for ultrasensitive detection of 4-nitrophenol, **ACS Sustainable Chemistry & Engineering**, 2018, 6 (12): 17391–17401.
32. Cheng, H.H., Zhou, X.P., Gao, A.M., Yi, F.Y., Shu, D.\*, Song, X.N., Zeng, R.H., He, C.\*, Li, S.Y., Zeng, D.P. Supermolecule polymerization derived porous nitrogen-doped reduced graphene oxide as a high-performance electrode material for supercapacitors, **Electrochimica Acta** 2018, 292: 20-30.
33. Yang, J.L., Zhang, Q., Zhang, F., Xia, D.H.\*, Liu, H.D., Tian, S.H., Sun, L.P., Shu, D., He, C.\*, Runa, S. Three-dimensional hierarchical porous sludge-derived carbon supported on silicon carbide foams as effective and stable Fenton-like catalyst for odorous methyl mercaptan elimination. **J. Hazard. Mater.** 2018, 358: 136-144.
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36. Tan, X.Q., Wan, Y.F., Huang, Y.J., He, C.\*, Zhang, Z.L., He, Z.Y., Hu, L.L., Zeng, J.W., Shu, D.\*. Three-dimensional  $\text{MnO}_2$  porous hollow microspheres for enhanced activity as ozonation catalysts in degradation of bisphenol A, **J. Hazard. Mater.** 2017, 321: 162-172.
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38. Hao, J.N., Huang, Y.J., He, C.\*, Xu, W.J., Yuan, L.B., Shu, D.\*, Song, X.N., Meng, T. Bio-templated fabrication of three-dimensional network activated carbons derived from mycelium pellets for supercapacitor applications, **Scientific Reports** 2018,8: 562.

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