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EDUCATION

- | | | |
|-----------------|---|---|
| 2014.09-2019.09 | Chongqing University, China
College of Chemistry and Chemical Engineering
Supervisor: Prof. Yanxiong
Project: Organic Synthesis Methodology | <i>PhD Candidate</i> |
| 2018.01-2019.05 | Peking University, China
College of Chemistry and Molecular Engineering, Physical Chemistry
Supervisor: Prof. Jin Zhang
Project: "Study of the Synthetic Methods of New Members of Graphdiyne" | <i>Training jointly
PhD student</i> |
| 2010.09-2014.06 | Yangtze Normal University, China
College of Chemistry and Chemical Engineering | <i>Bachelor</i> |

WORK EXPERIENCE

- | | | |
|-----------------|---|-----------------|
| 2021.05-Present | King Abdullah University of Science and Technology (KAUST) | <i>PostDoc.</i> |
| 2019.09-2021.04 | Chongqing University of Posts and Telecommunication, China
School of Communication and Information Engineering | <i>Lecturer</i> |

RESEARCH

● 2021.05– Present ● KAUST

- *Synthesis and characterization of novel polymers.*
- *Synthesis of Graphdiyne and its analogue based on alkyne coupling. Characterization by using Raman, XPS, SEM, TEM and other technologies. Explore its applications.*

● 2018.01 – 2019.05 ● Peking University

- *Synthesis of Graphdiyne and its analogue based on alkyne coupling or alkyne metathesis reaction. Investigating the basic properties of graphdiyne and exploring its potential applications.*

1. Graphdiyne/graphene (GDY/G) heterostructure supported atomic Pd catalyst for aromatic nitroreduction

In this project, I was responsible for the synthesis of few-layered GDY film on graphene sheets through solution phase van der Waals epitaxy and the characterization of the GDY/G heterostructures.

2. Synthesis of a new graphyne analogue based on alkyne metathesis reaction

In this project, I firstly synthesized the monomer (1,3,6,8-tetra(propyne)pyrene) from 1,3,6,8-tetrabromopyrene. And then, film like graphyne analogue was synthesized on the gas/liquid interface through alkyne metathesis reaction. The structure was characterized using Raman, TEM, XPS, FTIR and so on.

● 2014.09 - 2017.12 ● Chongqing University

➤ *Organic synthetic methodology*

1. Developed a hypervalent iodine (III)-intermediated direct oxidative rearrangement of 3-hydroxybut-2-enimides affording oxazoles under mild conditions.
2. Developed a cross-dehydrogenative coupling strategy for metal-free phosphonation and cyanation of secondary N-alkyl anilines.

PUBLICATIONS

- [1] **Q. Liu**, S. Yu, L. Hu, M. I. Hussain, X. Zhang, Y. Xiong.* Cross-dehydrogenative coupling strategy for phosphonation and cyanation of secondary N-alkyl anilines by employing 2,3-dichloro-5,6-dicyanobenzoquinone. *Tetrahedron*, 2018, 74, 7209-7217.
- [2] **Q. Liu**, X. Zhang, Y. He, M. I. Hussain, W. Hu, Y. Xiong.* Oxidative rearrangement strategy for synthesis of 2,4,5-trisubstituted oxazoles utilizing hypervalent iodine reagent. *Tetrahedron*, 2016, 72, 5749-5753.
- [3] J. Q. Li, **Q. Liu**, H. Shen, R. F. Huang, X. H. Zhang, Y. Xiong,* C. G. Chen.* Ethers as hydrogen sources in $\text{BF}_3 \cdot \text{OEt}_2$ promoted reduction of diphenylmethyl alcohols, ethers and esters to hydrocarbons. *RSC Advances*, 2015, 4, 85291-85295.
- [4] J. Q. Li, S. Li, **Q. Liu**, C. Yin, L. M. Tong, C. G. Chen,* J. Zhang.* Synthesis of hydrogen substituted graphyne film for lithium-sulfur battery application. *Small*, 2019, 15, 1805344.
- [5] R. Xiong, M. I. Hussain, **Q. Liu**, W. Xia, Y. Xiong,* Cross dehydrogenative coupling strategy for allylation of benzylanilines promoted by DDQ. *Tetrahedron*, 2020, 76, 130798
- [6] H. Shen, L. Hu, **Q. Liu**, M.I.Hussain, J. Pan, M. Huang, Y. Xiong,* Iron-catalysed sequential reaction towards α -aminonitriles from secondary amines, primary alcohols and trimethylsilyl cyanide. *Chemistry Communication*, 2016, 52, 2776-2779.
- [7] J. Q. Li, H. Shen, **Q. Liu**, M. M. Huang, C. K. Zheng, J. Pan, Y. Xiong,* C. G. Chen.* $\text{BF}_3 \cdot \text{OEt}_2$ -Catalyzed etherification of alcohols: a metal-free pathway to diphenylmethyl ethers. *Advanced Synthesis & Catalysis*, 2015, 357, 3115-3120.
- [8] M. Huang, L. Hu, H. Shen, **Q. Liu**, M.I.Hussain, J. Pan, Y. Xiong.* Sulfination of alcohols with sodium sulfates promoted by $\text{BF}_3 \cdot \text{OEt}_2$: an unexpected access. *Green Chemistry*, 2016, 18, 1874-1879.
- [9] J.Q. Li, X. Zhang, H. Shen, **Q. Liu**, J. Pan, W. Hu, Y. Xiong,* C. G. Chen.* Boron trifluoride-diethyl etherification of alcohols: a metal-free pathway to diphenylmethyl ethers. *Advanced Synthesis & Catalysis*, 2015, 357, 3115-3120.