ZHOUYI HE

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EDUCATION

Hong Kong University of Science and Technology (HKUST), HK, China *08/2019 - 07/2022*
M.Phil. in Chemistry (Working on Computational Biology) GPA: 3.33/4.3

University of Science and Technology of China (USTC), Hefei, China *08/2015 - 06/2019*
B.Sc. in Chemistry (Chemical Physics) GPA: 3.23/4.3 (Major GPA: 3.44/4.3)
TOEFL: 98 (R:30 L:28 S:18 W:22) *02/06/2018*

RESEARCH EXPERIENCE

Dynamic Expedition of Leading Mutations in SARS-CoV-2 Spike Glycoproteins M.Phil
Prof. Haibin Su's research group, department of chemistry, HKUST *05/2021-01/2022*

· A time-resolved statistical method, dynamic expedition of leading mutations (deLemus), to analyze the evolution dynamics of the spike protein. Together with analysis on single amino-acid polymorphism, we quantified the mutation strength of each amino acid to unravel mutation pattern of spike glycoprotein and effectively detect potential signal of emergent variants. *Preprint under review*

Evolution of CRISPR Cas9 systems in streptococcus genus M.Phil
Prof. Haibin Su's research group, department of chemistry, HKUST *06/2020-05/2021*

· Statistical coupling analysis is applied to retrieve sectors, and a domain motion dependent model is proposed to link the mutations in Cas9 protein and kinetic changes. Interaction of bacteria and virus species through CRISPR system is also investigated. *Presented in Symposium*

Unit Cell Consistency of Maximally Localized Wannier Functions Undergraduate Thesis
Prof. Xiao Zheng's research group, department of chemical physics, USTC *09/2018-07/2019*

· Theoretical derivation and computation validation of unit cell consistency of MLWFs. *Published*

Chemical-Physical and Aggregation Properties of alpha-synuclein Research Assistant
Prof. Jinqing Huang's research group, department of chemistry, HKUST *07/2018-08/2018*

· Structural characterization of toxic oligomers to properties of single molecule alpha-synuclein using Optical Tweezers and Ramon Spectroscopy.

Synthesis of single-atom catalyst with Pt atomic layer deposition on $g-C_3N_4$ RA
Prof. Junling Lu's research group, department of chemical physics, USTC *03/2017-06/2018*

PROFESSION

Discipline Chemical Physics, Statistical Mechanics, Quantitative and Systems Biology, Computational Chemistry, Evolutionary Biology, Biophysics, etc.
Software/Coding Python, MATLAB, C, Molucular Dynamics, Bioinformatics tools, etc.

ACADEMIC ACHIEVEMENTS AND EXTRA-CURRICULAR ACTIVITIES

Teaching Assistant of *Physical Chemistry II* @HKUST *2022*
Teaching Assistant of *Mathematical Methods for Physical Chemistry* @HKUST *2020, 2021*
National Endeavor Scholarship and Outstanding student Scholarship @USTC *2016, 2018*
Leader of teaching volunteers of aid education in western Hunan, China *2015*
Second Prize in 28th China Chemistry Olympic Competition *2014*