Shuai Zha – *Curriculum Vitae*

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Personal Profile

I am currently a postdoctoral researcher in the Department of Astronomy, Stockholm University, Sweden. I mainly work on developing a hydrodynamics code with neutrino transport to simulate stellar collapse and explosion. I also work on the evolution of super-asymptotic-giant-branch stars as progenitors of electron-capture supernovae.

Position

2019- Postdoctoral researcher, Department of Astronomy, Stockholm University

Education

2015-2019 Ph.D. in Physics - the Chinese University of Hong Kong, Hong Kong
Supernovae simulation and stellar evolution

2012-2015 M.Sc. in Physics - Fudan University, Shanghai
Sum-frequency spectroscopy with femtosecond laser

2008-2012 B.Sc. in Physics - Fudan University, Shanghai

Publications

First and second author:

1. Evolution of ONeMg Core in Super-AGB Stars towards Electron-Capture Supernovae: Effects of Updated Electron-Capture Rate
Shuai Zha, Shing-Chi Leung, Toshio Suzuki, Ken'ichi Nomoto
Astrophysical Journal **886**, 22 (2019); arXiv:1907.04184

2. Accretion-Induced Collapse of Dark Matter Admixed White Dwarfs - II: Rotation and Gravitational-wave Signals
Shuai Zha, Shing-Chi Leung, Ming-Chung Chu, Lap-Ming Lin
Astrophysical Journal **883**, 13 (2019); arXiv:1908.05150

3. Accretion-Induced Collapse of Dark Matter Admixed White Dwarfs - I : Formation of Low-mass Neutron Stars
Shing-Chi Leung, **Shuai Zha**, Ming-Chung Chu, Lap-Ming Lin, Ken'ichi Nomoto
Astrophysical Journal **884**, 9 (2019); arXiv:1908.05102

4. Electron capture rates in ^{20}Ne for a forbidden transition to the ground state of ^{20}F relevant to final evolution of high density O-Ne-Mg cores
   Toshio Suzuki, **Shuai Zha**, Shing-Chi Leung, Ken'ichi Nomoto
   Astrophysical Journal **881**, 64 (2019); arXiv:1905.10400

5. Gravitational-Wave and Neutrino Signals from Core-Collapse Supernovae with QCD Phase Transition
   Shuai Zha, Shing-Chi Leung, Lap-Ming Lin, and Ming-Chung Chu
   JPS Conf. Proc., **20**, 011053 (2018)

6. Surface pH and Ion Affinity at the Alcohol-Monolayer/Water Interface Studied by Sum- Frequency Spectroscopy
   Yu-Chieh Wen, **Shuai Zha**, Chuanshan Tian, and Yuen-Ron Shen
   The Journal of Physical Chemistry C, **120**, 28 (2016)

7. Unveiling Microscopic Structures of Charged Water Interfaces by Surface-Specific Vibrational Spectroscopy
   Yu-Chieh Wen, **Shuai Zha**, Xing Liu, Shanshan Yang, Pan Guo, Guosheng Shi, Haiping Fang, Yuen-Ron Shen, and Chuanshan Tian
   Phys. Rev. Lett., **116**, 016101 (2016)

Co-author:

8. Constraints on the chemical enrichment history of the Perseus Cluster of galaxies from high-resolution X-ray spectroscopy
   Aurora Simionescu et. al. (36 authors including Shuai Zha)
   Mon. Notices Royal Astron. Soc., **483**, 1701 (2018)

9. Carbon nanodots featuring efficient FRET for two-photon photodynamic cancer therapy with a low fs laser power density
   Jing Wang, Zehui Zhang, **Shuai Zha**, Yinyan Zhu, Peiyi Wu, Benjamin Ehrenberg, and Ji-Yao Chen
   Biomaterials, **35**, 9372 (2014)

Seminar talks

Oct. 2018	ASIAA, Lunch talk, Taipei, Taiwan Evolution of Super-AGB Stars Towards Accretion-Induced Collapse
Jul. 2018	Kavli IPMU, APEC seminar, Tokyo, Japan Correlated Gravitational-wave and Neutrino Signal from Accretion-Induced Collapse of White Dwarfs
Jul. 2016	Kavli IPMU, APEC seminar, Tokyo, Japan Accretion Induced Collapse of White Dwarf and its Possible Signals

Conference presentations

May 2019	Oral, Electron-Capture-Initiated Stellar Collapse, Lorentz Center, Leiden, The Netherlands
Nov. 2018	Oral, CoCoNuT Meeting 2018, CEA Saclay, Paris, France
Oct. 2018	Oral, The 8th East Asian Numerical Astrophysics Meeting, NCKU, Tainan, Taiwan
Sep. 2018	Poster, Sixth Annual GMT Community Science Meeting, Honolulu, Hawaii, United States
Feb. 2017	Poster, Quarks and Compact Stars, YITP, Kyoto University, Kyoto, Japan
Jul. 2016	Oral, 10th JGX Astrophysics Meeting, Xiamen University, Xiamen, Fujian

Research experience

2017-2018 Kavli IPMU, the University of Tokyo, Tokyo, Japan

Collaborative research with Prof. Ken'ichi Nomoto on Evolution of Super-AGB stars towards Electron-Capture Supernova

Teaching experience

2015-2019 **Teaching assistant** General Physics, Astronomy, Introduction to Astrophysics

2012-2015 **Teaching assistant** University Physics, Semiconductor Physics, Nonlinear Optics

Professional Activities

Feb. 2019 Organizer of supernova mini-workshop in CUHK, Hong Kong

Awards

Sep. 2017 Global Scholarship Programme for Research Excellence, CUHK

Sep. 2012 Entrance Scholarship for fresh graduate student, Fudan University

Programming Language

Fortran, C, matlab, Python, LaTeX