

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

- July 2019 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 accepted; arXiv:1907.04184
- June 2019 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; arXiv:1908.05150
- June 2019 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; arXiv:1908.05102
- May 2019 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; arXiv:1905.10400

- Nov 2018 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
- Jan 2018 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
- Jun 2016 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
- Jan 2016 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
- Aug 2014 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

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, L^AT_EX