

# Shuai Zha – *Curriculum Vitae*

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		<b>Date of Birth</b>	1 <sup>st</sup> September 1992
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## Positions

<b>06/2021 -</b>	Postdoctoral researcher, Tsung-Dao Lee Institute, Shanghai Jiaotong University
<b>09/2019 - 06/2021</b>	Postdoctoral researcher, Department of Astronomy, Stockholm University

## Education

<b>08/2015 - 08/2019</b>	Ph.D. - Physics Department, the Chinese University of Hong Kong <i>Research field: Supernova simulation and stellar evolution</i>
<b>09/2012 - 07/2015</b>	Master graduate in optics - Physics Department, Fudan University <i>Research field: Femtosecond laser spectroscopy</i>
<b>09/2008 - 07/2012</b>	B.Sc. - Physics Department, Fudan University

## Publications

**2** under review, **4** first author, **5** second author

### *Under review:*

1. Supernova Preshock Neutronization Burst as a Probe of Non-Standard Neutrino Interactions  
Xu-Run Huang, **Shuai Zha**, Lie-Wen Chen  
Submitted to *Astrophysical Journal Letters*; arXiv:2110.07249
2. Quantum Enhanced Interferometer for KiloHertz Gravitational Wave Detection  
Meng-Jun Hu, **Shuai Zha**, Yong-Sheng Zhang  
Submitted to *Physical Review Applied*; arXiv:2007.03978

### *First author:*

1. Progenitor Dependence of Hadron-quark Phase Transition in Failing Core-collapse Supernovae  
**Shuai Zha**, Evan P. O'Connor, André da Silva Schneider  
*Astrophysical Journal* **911**, 74 (2019); arXiv:2103.02268
2. Gravitational-wave Signature of a First-order Quantum Chromodynamics Phase Transition in Core-Collapse Supernovae  
**Shuai Zha**, Evan P. O'Connor, Ming-chung Chu, Lap-Ming Lin, Sean M. Couch  
*Physical Review Letters* **125**, 051102 (2020); *Editor's Suggestions*; arXiv:2007.04716

3. Evolution of ONeMg Core in Super-AGB Stars toward 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; IPMU *press*.
4. 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

*Second-author:*

5. Equation of State Dependence of Gravitational Waves in Core-Collapse Supernovae  
Oliver Eggenberger Andersen, **Shuai Zha**, André da Silva Schneider, Aurore Betranhandy, Sean M. Couch, Evan P. O'Connor  
*Astrophysical Journal* in press (2021); arXiv:2106.09734
6. Electron capture rates in  $^{20}\text{Ne}$  for a forbidden transition to the ground state of  $^{20}\text{F}$  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
7. 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
8. 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)
9. 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  
*Physical Review Letters*, **116**, 016101 (2016)

*Co-author:*

10. 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)
11. 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)

## Grants and Selected Awards

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| 11/2021- | Chinese International Postdoctoral Exchange Fellowship Program (Talent-Introduction Program), 400k RMB |
| 06/2020  | IAU travel grant for IAU Symposium 362, ~ 400 Euro <i>Canceled due to covid-19</i> .                   |
| 12/2019  | Grant for collaboration with University of Tokyo, 50k SEK (~ 5k US dollars)                            |

09/2017	Global Scholarship Programme for Research Excellence, CUHK, 20k HKD
09/2012	Scholarship for outstanding fresh graduate student, Fudan University
09/2008	Scholarship for outstanding fresh undergraduate student, Fudan University

## Computer times

08/2021 - 08/2022	CoI, Swedish National Infrastructure for Computing, 1.8 million core-h
08/2020 - 08/2021	CoI, Swedish National Infrastructure for Computing, 1 million core-h

## Professional Activities

09/2021-	Referee for <i>the Astrophysical Journal</i>
02/2019	Organizer of Supernova Mini-Workshop in CUHK, Hong Kong, China

## Research activities

<b>08/2020 - 09/2020</b>	Visiting scholar, TDLee Institute, Shanghai Jiaotong University, Shanghai, China Collaboration with Prof. Lie-Wen Chen on the impact of neutrino non-standard interaction on supernova
<b>09/2017 - 01/2018</b>	Kavli IPMU, the University of Tokyo, Tokyo, Japan Collaboration with Prof. Ken'ichi Nomoto on Evolution of Super-AGB stars towards Electron-Capture Supernova

## Seminar talks

Nov. 2020	TDL Institute, Shanghai, China
Oct. 2020	School of Physics, Central Normal University, Wuhan, China
Sep. 2020	Yunnan Observatory, Kunming, Yunnan, China
Sep. 2020	TDL Institute, Shanghai, China
Aug. 2020	CTPU, IBS, South Korea, <i>via web</i>
Feb. 2020	OKC, EO meeting, Stockholm, Sweden
Jan. 2020	CUHK Seminar, Hong Kong, China
Oct. 2018	ASIAA, Lunch talk, Taipei, Taiwan, China
Jul. 2018	Kavli IPMU, APEC seminar, Tokyo, Japan
Jul. 2016	Kavli IPMU, APEC seminar, Tokyo, Japan

## Conference presentations

Apr. 2021	Oral, APS April meeting 2020, remote
Nov. 2020	Oral, Partikeldagarna 2020, Sweden
Feb. 2020	Poster, Compact Objects for All, Lund, Sweden
Nov. 2019	Oral, Oskar Klein Center day, Stockholm, Sweden

May 2019	Oral, Electron-Capture-Initiated Stellar Collapse, Lorentz Center, Leiden, The Netherlands
Feb. 2019	Oral, Supernova Mini-Workshop in CUHK, Hong Kong, China
Nov. 2018	Oral, CoCoNuT Meeting 2018, CEA Saclay, Paris, France
Oct. 2018	Oral, The 8th East Asian Numerical Astrophysics Meeting, NCKU, Tainan, Taiwan, China
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, China

## Teaching experiences

06/2018	<b>Mentor</b> Lectures for summer students on supernovae and hydrodynamical simulations
06/2017	<b>Mentor</b> Summer student Soumyadeep Das on supernova simulation
2015-2019	<b>Teaching assistant</b> , CUHK, General Physics, Astronomy, exercise class
2012	<b>Teaching assistant</b> , Fudan University, University Physics, exercise class

## Programming Languages

*Fortran, Python, matlab, L<sup>A</sup>T<sub>E</sub>X, C*