

# Shuai Zha – *Curriculum Vitae*

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<b>Date of Birth</b>	1 <sup>st</sup> September 1992	<b>Email</b>	shuai.zha@astro.su.se
<b>Nationality</b>	Chinese	<b>Homepage</b>	joshuashzha.github.io

## Positions

**2019 Sep. -** Postdoctoral researcher, Department of Astronomy, Stockholm University

## Education

**2015 Aug. -2019 Aug.** Ph.D. in Physics - the Chinese University of Hong Kong  
*Thesis: Supernovae simulation and stellar evolution*

**2008 Sep. -2012 Jul.** B.Sc. in Physics - Fudan University

## Publications

*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  
Accepted by Astrophysical Journal, 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:*

4. 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

5. 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
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  
*Physical Review Letters*, **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

- 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, *via web*
- 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

- 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

## Research experience

**Aug 2020 - Sep 2020**    Visiting scholar, TDLi Institute, Shanghai Jiaotong University, Shanghai, China

**Sep 2017 - Jan 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

## Professional Activities

Feb. 2019    Organizer of Supernova Mini-Workshop in CUHK, Hong Kong, China

## Grants and Selected Awards

Jun. 2020    IAU travel grant for IAU Symposium 362,  $\sim 400$  Euro *Canceled due to covid-19*.

Dec. 2019    Grant for collaboration with University of Tokyo, 50000 SEK ( $\sim 5000$  US dollars)

Sep. 2017    Global Scholarship Programme for Research Excellence, CUHK, 20000 HKD

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

Sep. 2008    Scholarship for outstanding fresh undergraduate student, Fudan University

## Computer times

Aug 2020 - Aug 2021    Co-Investigator, SNIC 2020/5-385,  $90 \times 1000$  core-h/month

## Teaching experiences

Jun. 2018    **Mentor** Lectures for summer students on supernovae and hydrodynamical simulations

Jun. 2017    **Mentor** Summer student Soumyadeep Das on supernova simulation

2015-2019    **Teaching assistant**, CUHK, General Physics, Astronomy, exercise class

2012 Spring    **Teaching assistant**, Fudan University, University Physics, exercise class

## Programming Languages

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

## Human languages

Mandarin (native), English (fluent), Cantonese (medium), Japanese (basic)