Shuai Zha – *Curriculum Vitae*

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Nationality	Chinese	**Homepage**	joshuashzha.github.io
Date of Birth	1^{st} September 1992		

Positions

06/2021 - Postdoctoral researcher, Tsung-Dao Lee Institute, Shanghai Jiaotong University

09/2019 - 06/2021 Postdoctoral researcher, Department of Astronomy, Stockholm University

Education

08/2015 - 08/2019 Ph.D. - Physics Department, the Chinese University of Hong Kong
Research field: Supernova simulation and stellar evolution

09/2012 - 07/2015 Master graduate in optics - Physics Department, Fudan University
Research field: Femtosecond laser spectroscopy

09/2008 - 07/2012 B.Sc. - Physics Department, Fudan University

Publications

16 in total (**3** under review), **6** first author, **8** second author, **2** coauthor
2 published in *Physical Review Letters*

Under review:

1. Impact of Rotation on the Multimessenger Signatures of a Hadron-quark Phase Transition in Core-collapse Supernovae
Shuai Zha, Evan P. O'Connor
Submitted to *Physical Review D*; arXiv:2209.12418

2. Detectability of hadron-quark phase transition in neutrino signals of failing core-collapse supernova
Zidu Lin, **Shuai Zha**, Evan P. O'Connor, Andrew W. Steiner
Submitted to *Physical Review D*; arXiv:2203.05141

3. 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. Hydrodynamic Simulations of Electron-capture Supernovae: Progenitor and Dimension Dependence
Shuai Zha, Evan P. O'Connor, Sean Couch, Shing-Chi Leung, Ken'ichi Nomoto
MNRAS **513**, 1317 (2022); arXiv:2112.15257

2. 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 (2021); arXiv:2103.02268

3. 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

4. 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.*

5. 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:

6. Supernova Preshock Neutronization Burst as a Probe of Non-Standard Neutrino Interactions
   Xu-Run Huang, **Shuai Zha**, Lie-Wen Chen
   Astrophysical Journal Letters **923**, L26 (2021); arXiv:2110.07249

7. 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 **923**, 201 (2021); arXiv:2106.09734

8. 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

9. 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

10. 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)

11. 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:

12. 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)

13. 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

07/2022	China Postdoctoral Science Foundation General Program, 80k CNY
11/2021	Chinese International Postdoctoral Exchange Fellowship Program (Talent-Introduction Program), 400k CNY
06/2020	IAU travel grant for IAU Symposium 362, $\sim$ 400 Euro
12/2019	Grant for collaboration with University of Tokyo, 50k SEK ($\sim$ 5k US dollars)
09/2017	Global Scholarship Programme for Research Excellence, CUHK, 20k HKD
09/2008	Scholarship for outstanding fresh undergraduate student, Fudan University

Computer times

08/2022 - 08/2023	CoI, Swedish National Infrastructure for Computing, 4.2 million core-h
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 *the Astrophysical Journal*
02/2019	Organizer of Supernova Mini-Workshop in CUHK, Hong Kong, China

Research activities

08/2020 - 09/2020	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
09/2017 - 01/2018	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, *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

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

Programming Languages

Fortran, Python, matlab, LaTeX, C