

# XUEJIAN(JACOB) SHEN

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California Institute of Technology

1200 E. California Blvd, Pasadena, CA 91125 USA

## EDUCATION

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### California Institute of Technology

Sept. 2018 - Present

Ph.D. Candidate, Physics

Division of Physics, Math and Astronomy, California Institute of Technology, Pasadena, CA, USA

Academic and Research Advisor: Prof. Philip Hopkins

Thesis Title: *to be determined*

### Peking University

Sept. 2014 - June 2018

B.S., Physics

Department of Physics, Peking University, Beijing, China

Advisor: Prof. Fukun Liu

Thesis Title: "Strengthened Kozai-Lidov Oscillation, Tidal Disruption Event Rate and Gravitational Wave in Hierarchical SMBH Triplets"

## EMPLOYMENT

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### Graduate Teaching Assistant

Jan. 2018 - Present

California Institute of Technology, Pasadena, CA, USA

### Undergraduate Summer Research Internship

July 2017 - Sept 2017

Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology, Cambridge, MA, USA

## RESEARCH INTERESTS

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Cosmological simulations of galaxy formation; Astrophysical constraints on the nature of dark matter; Galaxies and quasars at high redshift

## FORTHCOMING PAPERS

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1. Shen, Xuejian; Hopkins, Philip; Necib, Lina et al. (2020), *Dissipative SIDM on FIRE: I. Density profiles and kinematic properties of dwarf galaxies*
2. Shen, Xuejian; Vogelsberger, Mark; Nelson, Dylan; Pillepich, Annalisa et al. (2020), *High redshift JWST predictions from IllustrisTNG: II. Galaxy emission luminosity functions, D4000s, UV continuum slopes and dust attenuation curves*

## PUBLICATIONS

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1. Shen, Xuejian; Hopkins, Philip; Faucher-Giguère, Claude-André; Alexander, Dave; Richards, Gordon; Ross, Nicholas; Hickox, Ryan (2019), *The Bolometric Quasar Luminosity Function at  $z=0-7$* , submitted to MNRAS, eprint arXiv:2001.02696
2. Wang, Yunchong; Vogelsberger, Mark; Xu, Dandan; Shen, Xuejian et al. (2019), *Early-type galaxy density profiles from IllustrisTNG - II. Evolutionary trend of the total density profile*, Monthly Notices of the Royal Astronomical Society, Volume 490, Issue 4, p.5722-5738
3. Mocz, Philip; Fialkov, Anastasia; Vogelsberger, Mark; Becerra, Fernando; Shen, Xuejian et al.

(2019), *Galaxy Formation with BECDM – II. Cosmic Filaments and First Galaxies*, submitted to MNRAS, eprint arXiv:1911.05746

4. Vogelsberger, Mark; Nelson, Dylan; Pillepich, Annalisa; Shen, Xuejian et al. (2019), *High redshift JWST predictions from IllustrisTNG: Dust modelling and galaxy luminosity functions*, accepted by MNRAS, eprint arXiv:1904.07238

5. Lovell, Mark R.; Zavala, Jesús; Vogelsberger, Mark; Shen, Xuejian; Cyr-Racine, Francis-Yan et al. (2018), *ETHOS - an effective theory of structure formation: predictions for the high-redshift Universe - abundance of galaxies and reionization*, Monthly Notices of the Royal Astronomical Society 477 (3), 2886-2899

**TECHNICAL STRENGTHS**

<b>Natural Languages</b>	Native in Mandarin. Fluent in English.
<b>Programing Languages</b>	Proficient in Python, Mathematica, C and Linux shell. Experience in C++, MATLAB.
<b>Markup Languages</b>	Proficient in L <sup>A</sup> T <sub>E</sub> X. Experience in HTML.

**AWARDS**

<b>Honored Graduate</b> <i>Peking University</i>	2018
<b>Meritorious Award</b> <i>Mathematical Contest in Modeling (MCM)</i>	2017
<b>Silver Medal</b> <i>National Final of the 30th Chinese Physics Olympiad (CPHO)</i>	2013