

Saiyang Zhang

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Education

2020 - present	University of Texas at Austin, TX Ph.D. candidate in Physics Cumulative GPA: 3.84.
2015 - 2019	Colgate University, NY B.A., Astronomy/Physics with honors, 2019. B.A., Applied Mathematics, 2019. Cumulative GPA: 3.77, Major GPA: 3.86 and 3.93.

Research

2022–current	University of Texas at Austin, Advisor: Volker, Bromm Project: <i>Imprints of the Primordial Black Holes over Cosmic History</i>
2021–2024	University of Texas at Austin, Advisor: Katherine, Freese Project: <i>Detection of the Dark Stars by JWST/Roman Telescopes</i>
2018–2020	Colgate University, Advisor: Cosmin, Ilie Project: <i>Dark Matter Capture by Massive Objects</i>
2017	Colgate University, Advisor: Enrique, Galvez Project: <i>Polarization of Gaussian Beams</i>
2016	Colgate University, Advisor: Thomas, Balonek Project: <i>Optical Variability of Quasars</i>

Languages & Skills

Languages	Chinese (native), English (advanced), Japanese(elementary)
Programming	Highly Proficient: Python, C/C++, R, MATLAB, L ^A T _E X, Mathematica Proficient: Bash, Fortran

Associations

2016-	American Physical Society (APS)
2015-2019	American Mathematical Society (AMS)

Presentation

April 2024	Physics Seminar (Invited), Colgate University, Hamilton, NY Title: <i>My Journey through Dark Matter and Early Universe</i>
December 2023	Texas Symposium on Relativistic Astrophysics Tsung-Dao Li Institute, SJTU, Shanghai, China Title: <i>Imprints of the Primordial Black Holes over Cosmic History</i>
April 2022	APS April Meeting, New York City, NY Title: <i>Detection of Super Massive Dark Stars by the Roman Space Telescope</i>
June 2019	Symposium in Honor of the Legacy of Vera Rubin Georgetown University, Washington DC Title: <i>Multi-scatter Capture of Superheavy Dark Matter by Pop.III Stars</i>
March 2019	Rochester Symposium for Physics Students: SPS Regional Meeting University of Rochester, Rochester, NY Title: <i>Multi-scatter Capture of Superheavy Dark Matter by the First Stars</i>
2018	The International Society for Optics and Photonics(SPIE): SPIE OPTO San Francisco, CA Title: <i>Multitwist Mobius polarization in crossed complex light beams</i>
October 2016	Keck Northeast Astronomy Consortium Wesleyan University, Middletown, CT Title: <i>The Multi-Decade Optical Light Curve and Microvariability of Blazar OJ 287</i>

Teaching

UT Austin	Department of Physics
Spring 2024	Grading Assistant, <i>PHY 362K Quantum Mechanics II: Atoms/Molecules</i>
Fall 2023	Grading Assistant, <i>PHY 373 Quantum Mechanics I: Foundations</i>
2020-2023	Lab TA, <i>PHY 105N, PHY 102N Labs for Physics II</i>
Spring 2022	Grading Assistant, <i>PHY 352L Classical Electrodynamics II</i>
Colgate Univ	Department of Mathematics
Spring 2019	Math Tutor, <i>MATH 311 Partial Differential Equation</i>
	Department of Physics and Astronomy
Fall 2018	Physics Tutor, <i>ASTR 210 Intermediate Astronomy and Astrophysics</i>
Fall 2016	Physics Tutor, <i>PHYS 131 Atoms and Waves</i>

Awards & Fellowship

Colgate Univ 2019	Joseph C. Amato & Anthony F. Aveni Award For showing excellence in scientific research
 2016-2019	 Dean's Award with Excellence For Academic Excellence
 2016	 Edwin Foster Kingsbury Prize For distinguished academic achievement
 2016	 Sisson Mathematics Prizes For distinguished academic achievement
 APS 2022	 APS DAP Student/Postdoc Travel Grant For presenters who need reimbursement of travel costs

Selected Publications

- 2024 **Zhang, S.**, Ilie, C., & Freese, K. *Detectability of Supermassive Dark Stars with the Roman Space Telescope*, The Astrophysical Journal 965.2 (2024): 121, [arXiv:2306.11606]
- 2023 **Zhang, S.**, Liu, B., & Bromm, V. 2023. *Distinguishing the impact and signature of black holes from different origins in early cosmic history*, MNRAS, 528, 180., [arXiv: 2310.01763].
- 2022 Liu, B., **Zhang, S.**, & Bromm, V. 2022, *Effects of stellar-mass primordial black holes on first star formation*, MNRAS, 514, 2376., [arXiv:2204.06330]
- 2021 Ilie, C., Levy, C., Pilawa, J., & **Zhang, S.** *Constraining dark matter properties with the first generation of stars*, Phys. Rev. D, 104, 123031., [arXiv: 2009.11474]
- 2020 Ilie, C., Pilawa, J., & **Zhang, S.** *Comment on “Multiscatter stellar capture of dark matter*, Phys. Rev. D, 102, 048301. [arXiv:2005.05946]
- 2019 Ilie, Cosmin, and **Saiyang Zhang**. *Multiscatter capture of superheavy dark matter by Pop III stars*, Journal of Cosmology and Astroparticle Physics 2019. 12 (2019): 051, [arXiv:1908.02700].
- Weaver, Zachary R., ..., **Saiyang Zhang**, ..., et al. *The 2016 June Optical and Gamma-Ray Outburst and Optical Microvariability of the Blazar 3C 454.3*, The Astrophysical Journal 875.1 (2019): 15, [arXiv:1903.04587].
- 2017 Galvez, Enrique J., Ishir Dutta, and **Saiyang Zhang**. *Möbius Polarization of Non-Collinear Poincare Superpositions*, Latin America Optics and Photonics Conference. Optical Society of America, 2018.
- 2016 Balonek, Thomas J., ..., **Saiyang Zhang**, ..., et al. *The Optical Variability of the Blazar 3C 454.3 over Three Decades from the Colgate University Foggy Bottom Observatory*, American Astronomical Society Meeting Abstracts# 229. Vol. 229. 2017.
- Balonek, Thomas J., **Saiyang Zhang**, et al. *Blazar CTA 102 Reaches Historic Optical Maximum During Current Extended Period of Activity*, The Astronomer’s Telegram 9732 (2016).
- Chapman, Katie J., ..., **Saiyang Zhang**, ... et al. *A Spectacular, Unprecedented Optical Flare in the Blazar CTA 102*, The Astronomer’s Telegram 9756 (2016).