

Benny Tsz-Ho Tsang

benny.tsang@berkeley.edu — <https://bthtsang.github.io/>
Theoretical Astrophysics Center, UC Berkeley, Berkeley CA 94720

PROFESSIONAL EXPERIENCE

- 2020 - 2022** Postdoctoral Scholar Theoretical Astrophysics Center
University of California, Berkeley
- 2018 - 2020** Postdoctoral Scholar Kavli Institute for Theoretical Physics
University of California, Santa Barbara

EDUCATION

- 2012 - 2018** Ph.D. Astronomy The University of Texas at Austin
- 2010 - 2012** M.Phil. Physics The University of Hong Kong
- 2007 - 2010** B.S. Mathematics and Physics The University of Hong Kong

RESEARCH INTERESTS

Computational Astrophysics – Radiation Hydrodynamics – Stars and Supernovae
Machine Learning in Astronomy

AWARDS & GRANTS

- 2018** David Alan Benfield Memorial Fellowship in Astronomy, UT Austin
- 2017 - 2018** PI, Education & Professional Development Mini-Grant, AAS
- 2017** First Place, Visualizing Science Contest, College of Natural Sciences, UT Austin
- 2015** Graduate School Continuing Fellowship, UT Austin
- 2012 - 2015** Hui Pun Hing Scholarship for Postgraduate Research Overseas, University of Hong Kong

PEER-REVIEWED PUBLICATIONS

- Smith, A., Kannan, R., **Tsang, B. T.-H.**, Vogelsberger, M., Pakmor, R., 2020, *Astrophysical Journal*, accepted.:
‘Arepo-MCRT: Monte Carlo Radiation Hydrodynamics on a Moving Mesh’
- Tsang, B. T.-H.**, Goldberg, J. A., Bildsten, L., Kasen, D., 2020, *Astrophysical Journal*, **898**, 29:
‘Comparing Moment-Based and Monte Carlo Methods of Radiation Transport Modeling for Type II-Plateau Supernova Light Curves’
- Zevin, M., ..., **Tsang, B. T.-H.**, et. al., 2019, *Astrophysical Journal*, **886**, 4:
‘Can Neutron-Star Mergers Explain the r -Process Enrichment in Globular Clusters?’
- Tsang, B. T.-H.**, Schultz C. W., 2019, *Astrophysical Journal Letters*, **877**, 14:
‘Deep Neural Network Classifier for Variable Stars with Novelty Detection Capability’
- Smith, A., **Tsang, B. T.-H.**, Bromm, V., Milosavljević M., 2018, *Monthly Notices of the Royal Astronomical Society*, **479**, 2065:
‘Discrete diffusion Lyman α radiative transfer’
- Tsang, B. T.-H.**, Milosavljević M., 2018, *Monthly Notices of the Royal Astronomical Society*, **478**, 4142:
‘Radiation pressure in super star cluster formation’

Tsang, B. T.-H., Milosavljević M., 2015, *Monthly Notices of the Royal Astronomical Society*, **453**, 1108: ‘Radiation pressure driving of a dusty atmosphere’

Tsang, B. T.-H., Pun C. S. J., Di Stefano R., Li K.-L., Kong A. K. H., 2012, *Astrophysical Journal*, **754**, 107:

‘The Discovery of an X-ray/UV Stellar Flare from the Late-K/Early-M dwarf LMC 335’

SELECTED SCIENTIFIC PRESENTATIONS

- July 2020** Explosive Astro Seminar, UC Berkeley (remote),
‘Modeling of Type-II Plateau Supernova Light Curves and Spectra’
- Nov 2019** Hernquist Research Group Meeting, Harvard University;
Astrophysics Brown Bag Lunch Talk, MIT,
‘Understanding the Life and Death of Massive Stars using Numerical Radiation Hydrodynamics’
- Oct 2019** [Invited talk] Time-Domain Astrophysics Seminar, New York University,
‘Modeling of Type II-P Supernova Light Curves and the Neural Network Classification of Variable Stars’
- Sep 2019** Zwicky Transient Facility (ZTF) Theory Network Meeting,
‘Modeling Type II-Plateau Supernovae’
- June 2019** Merging Visions: Exploring Compact-Object Binaries with Gravity and Light program, Kavli Institute for Theoretical Physics (KITP),
‘Proto-Globular Clusters and r-Process Enrichment’
- Nov 2018** Astro-Lunch Talk, UC Santa Barbara,
‘Simulating the intense star formation in super star clusters’
- Nov 2018** [Invited Chalk talk] KITP Locals Lunch,
‘Modeling Radiation in Massive Stars’
- Dec 2018** ZTF Theory Network Meeting,
‘Deep learning applied to periodic light curve classification’
- July 2018** ZTF Theory Network Meeting,
‘Monte Carlo Radiation Hydrodynamics in Super-Eddington Systems’
- Jan 2018** [Dissertation talk] 231st AAS Meeting; Washington DC,
‘Radiation hydrodynamics of super star cluster formation’
- Jan 2018** [Invited] Astronomy Seminar, University of Virginia,
‘Toward a Unified Model of Massive Star Cluster Formation’
- Oct 2017** [Invited] Theoretical Astrophysics Center (TAC) Seminar, UC Berkeley,
‘Radiation pressure in super star cluster formation’
- Oct 2017** [Invited] Society of Physics Students (SPS) talk, Texas Lutheran University,
‘Building super star clusters on supercomputers’

POSTER PRESENTATIONS

Doughty, C., Khullar, G., Shipp, N., **Tsang, B. T.-H.**, Astrobites Team, 2019, 233th American Astronomical Society (AAS) Meeting: ‘Using Astrobites to Teach Contemporary Astronomy’

Tsang, B. T.-H., Kohler, S., Astrobites Team, 2017, 230th AAS Meeting: ‘Astrobites: Blogging Astrophysics Research, Bringing it to the Classroom, and beyond’

Tsang, B. T.-H., Milosavljević M., 2016, *Star Formation 2016*:
‘Radiation pressure feedback in super star cluster formation’

Tsang, B. T.-H., Milosavljević M., 2016, 228th AAS Meeting: ‘The Role of Radiation Pressure in Assembling Super Star Clusters’

Tsang, B. T.-H., Milosavljević M., 2016, *From Stars to Massive Stars: ‘Radiation Hydrodynamics of Super Star Cluster Nuclei’*

MEMBERSHIPS & COMMUNITY SERVICE

Reviewer, <i>ApJ</i> , <i>IEEE Access</i>	2018 – present
Full Member, AAS	2016 – present
Member, National Association of Science Writers	2017 – present
Chair, Astronomy Educational Workshop, 231 st AAS Meeting	2018 Jan

OUTREACH & SCIENCE COMMUNICATION

(Remote) Guest Lecturer, Laguna High School, ‘Life as a computational astrophysicist’	2020 Nov
Curator, Santa Barbara Newcomers’ Open House	2020 March (Canceled)
Guest Lecturer, Laguna High School, ‘The Science in Our Stars’	2019 Feb, Dec
Speaker, Cafe KITP, ‘Order from Chaos: Tracing the Life and Death of Stars’	2019 Aug
Speaker, Astronomy on Tap Santa Barbara, ‘Forming Super Star Clusters in Supercomputers’	2018 Sep
Speaker, Astronomy on Tap ATX #41, ‘Forming Super Star Clusters’	2018 Feb
Speaker, Astronomy Student Association (ASA) talk, UT Austin	2018 Feb
AAS Astronomy Ambassador, 231 st AAS Meeting	2018 Jan
AAS Media intern, 230 th AAS Meeting	2017 Jun
Author & administrator, Astrobites.org (my articles)	2015 – present
Contributor, AAS NOVA	2015 – 2017

MENTORING EXPERIENCE

Graduate Student:

William Schultz (UC Santa Barbara)	2018 – present*
------------------------------------	-----------------

Undergraduate Students:

Siddhant Solanki (UC Santa Barbara)	2019 – present*
Abhay Agarwal (UC Berkeley)	2020 – present

*: whose projects led to or will soon lead to refereed publications

TEACHING EXPERIENCE

Graduate teaching assistant for the following undergraduate courses — responsible for conducting weekly review session, grading homework, holding office hours, and overseeing course communication.

University of Texas at Austin

AST 353: Astrophysics	Spring 2015-2018
AST 352K: Stellar Astronomy	Fall 2016
AST 309C: Births of Stars and Planets	Fall 2015
AST 309G: Popular Astronomy	Fall 2015
AST 301: Introduction to Astronomy	Fall 2012-2015, 2017
AST 309L: The Search for Extraterrestrial Life and Intelligence	Spring 2013