Patricia Bo Cho

University of Texas at Austin Astronomy Ph.D. Candidate
DOE NNSA Laboratory Residency Graduate Fellow

EDUCATION

University of Texas at Austin, Ph.D. Candidate June 2020 - present
Benchmark Photoionized Plasma Experiments on the Z Machine: Interrogating High Density Atomic Calculations Toward Resolving the Supersolar Fe Abundance Problem

University of Texas at Austin, M.A. Astronomy May 2021

Columbia University Sep 2015 - May 2018
Astrophysics Major, Stem GPA: 3.83, Cumulative GPA: 3.92

Williams College May 2010
B.A. cum laude in Asian Studies (with honors), Major GPA: 3.93, Cumulative GPA: 3.58

PUBLICATIONS

1. ***Simulation of Stark-broadened Hydrogen Balmer line shapes for DA white dwarf synthetic spectra (first author)***
   Cho, P.B.; Gomez, T.A.; Montgomery, M.H.; Dunlap, B.H.; Fitz Axen, M.; Hobbs, B.; Hubeny, I.; Winget, D.E. (2022) *Astrophysical Journal*, 927, 70.

2. ***Variable heating and flaring of three redback millisecond pulsars (first author)***
   Cho, P.B.; Halpern, J.; Bogdanov, S. (2018) *Astrophyiscal Journal*, 866, 71.

3. ***Introduction to spectral line shape theory***
   Gomez, T.A.; Nagayama, T.; **Cho, P.B.**; Kilcrease, D.P., Fontes, C.J.; Zammit, M. C. (2022) *Journal of Physics B: Atomic, Molecular and Optical Physics* 55, 3.

4. ***Hydrogen line shape uncertainties in white dwarf model atmospheres***
   Montgomery, M.H.; Dunlap, B.H.; **Cho, P.B.**; Gomez, T.A. (2022) *Frontiers in Astronomy and Space Sciences*, Vol. 9.

5. ***All-order full-coulomb quantum spectral line-shape calculations***
   Gomez, T.A.; Nagayama, T.; **Cho, P.B.**; Zammit, M.C.; Fontes, C.J.; Kilcrease, D.P.; Bray, I.; Hubeny, I.; Dunlap, B.; Montgomery, M.H.; Winget, D.E.(2021) *Physical Review Letters,*127,23.

6. ***The heating and pulsations of V386 serpentis after its 2019 dwarf nova outburst***
   Szkody, P.; Godon, P.; Gaensicke, B.T.; Kafka, S.; Castillo, O.; Bell, K.J.; **Cho, P.B.**; Sion, E.M.; Kumar, P.; Townsley, D.M.; Vanderbosch, Z.; Winget, K.; Olde Loohius, C.J. (2020) *Astrophysical Journal*, 914, 40.

7. ***Illuminating white dwarf spectra through laboratory experiments at cosmic conditions***
   Winget, D.; Montgomery, M.H.; Dunlap, B.H.; **Cho, P.B.**; Schaeuble, M.-A.; Gomez, T.A. (2020) *High Energy Density Physics*, Vol 37.

8. ***A white dwarf with transiting circumstellar material far outside the roche limit***
   Vanderbosch, Z.; Hermes, J. J.; Dennihy, E.; Dunlap, B.H.; Izquierdo, P.; Tremblay, P.E.; **Cho, P.B.;** Gaensicke, B.T.; Toloza, O.; Bell, K.J.; Montgomery, M.H.; Winget, D.E. (2020) *Astrophysical Journal*, 897, 2.

9. ***Optical studies of 15 hard X-ray selected cataclysmic binaries***
   Halpern, J.P.; Thorstensen, J.R.; **Cho, P.**; Collver, G.; Motsoaledi, M.; Breytenbach, H.; Buckley, D.A.H.; Woudt, P.A. (2018) *Astronomical Journal*, 155, 6.

10. ***Power excursion mitigation for flexgrid defragmentation with machine learning***
Huang, Y.; **Cho, P.B**.; Samadi, P.; Bergman, K. (2018) *Journal of Optical Communications and Networking*, 10, 1.

11. ***Dynamic mitigation of EDFA power excursions with machine learning***
Huang, Y.; Gutterman, C. L.; Samadi, P.; **Cho, P. B.**; Samoud, W.; Ware, C.; Lourdiane, M.; Zussman, G.; and Bergman, K. (2017) *Optics Express* 25, 3.

PROFESSIONAL APPOINTMENTS

Graduate Research Assistant, UT Austin Astronomy August 2018 - present
Research Advisor: Prof. Don Winget, Mike Montgomery

Research Intern, Columbia Astrophysics Laboratory Sep 2016 - June 2018
Research Advisor: Prof. Jules Halpern

Tutor, Columbia Academic Resource Center, General Physics Sep 2016 - June 2018

Research Intern, Columbia University Lightwave Research Laboratory May 2016 - Jul 2016
Center for Integrated Access Networks (CIAN) Integrated Optics for Undergraduates REU
Research Advisor: Prof. Keren Bergman, Yishen Huang

Sales Operations Manager, McMaster-Carr Supply Company Sep 2013 - Jul 2014
Freight Receiving Supervisor, McMaster-Carr Supply Company Jun 2013 - Aug 2013
Remittance Processing Supervisor, McMaster-Carr Supply Company Jun 2012 - May 2013
Management Candidate, McMaster-Carr Supply Company Jul 2011 - Jun 2012

AmeriCorps Teaching Fellow/Summer Programs Coordinator Aug 2010 - Jun 2011
Match Corps, MATCH High School, Boston MA

Teaching Assistant, Williams College, 1st and 2nd year Chinese Sep 2007 - May 2010

SELECTED SERVICE AND ACTIVITIES

Co-Supervision of research led by Isaac Huegel (UT Austin undergraduate, ongoing) 2020 -
Organizer, Astrophysics Breakout Session, 2022 Z Fundamental Science Workshop 2022
Volunteer Mentor, UNM STEM Mentoring Program 2019 - 2020
Volunteer Tutor, Columbia University Double Discovery Center 2017
Volunteer Tutor, Harlem Reading Team Math Program 2017
Elected Member, Williams Committee on Diversity and Community 2009 - 2010

RECENT FELLOWSHIPS AND AWARDS

SSAP Outstanding Poster Award 2021 & 2022
DOE NNSA Laboratory Residency Graduate Fellowship 2020-2024
Source: DOE | **Duration:** Renewable up to 4 years | **Amount:** monthly stipend, tuition, insurance
Z Fundamental Science (FS) Program Shot Allocation (Principal Investigator) 2023 - 2024
Title:Testing high-density and transient effects in photoionized plasma emission from black hole accretion
Source: Sandia National Labs | **Duration:** 2 years | **Amount:** 6 FS ride-along shots, 18 SAT ride-along shots

Contact Information:
patricia.cho@utexas.edu
Department of Astronomy, PMA 16.226AA
2515 Speedway Stop C1400
Austin, TX 78712-1205

pbcho@sandia.gov
Sandia National Laboratories
1515 Eubank SE, MS-1193 MO296/16
Albuquerque, NM, 87185