Curriculum Vitae

Bo-Eun Choi

(she/her)
Email: bechoi@uw.edu · Website: boeunchoi.github.io
Department of Astronomy, University of Washington, Box 351580, Seattle, WA 98195-1580

Appointments

Postdoctoral Researcher	**University of Washington**, USA	Oct 2026–present
Pre-doctoral Researcher	**UNIST**, South Korea	Mar–Jul 2021

Education

PhD	**University of Washington**, Astronomy	Aug 2026
MSc	**University of Washington**, Astronomy	May 2023
MSc	**Sejong University**, Astronomy	Feb 2021
BSc	**Sejong University**, Astronomy, Physics, *Cum Laude*	Feb 2019

Research Interests

Circumgalactic Medium, Interstellar Medium, Galaxy Evolution, Stellar Feedback, Spectroscopy, Radiative Transfer

Publications

Link to ADS/ SciX/ Google Scholar

First-Author Publications:

- **Choi, B.-E.**, Werk, J. K., et al. [in prep.]
  Resolving a Galactic Fountain Flow through Chemical and Kinematic Structure across Complex K
- **Choi, B.-E.**, Levesque, E. M., et al. [in prep.]
  A Decadal Spectroscopy of HV 2112, a Thorne-Żytkow Object Candidate in the SMC
- **Choi, B.-E.**, Werk, J. K., Tchernyshyov, K., et al. 2025, ApJL, 995, L24
  The Plane Quasar Survey: An Ionized Extension of the Magellanic Stream on the Northern Side of the Galactic Plane
- **Choi, B.-E.**, Werk, J. K., Tchernyshyov, K., et al. 2024, ApJ, 976, 222
  Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk–Halo Interface
- **Choi, B.-E.** & Lee, H.-W. 2020, ApJL, 903, L39
  Discovery of Raman-scattered He II λ6545 in the Planetary Nebulae NGC 6886 and NGC 6881
- **Choi, B.-E.**, Chang, S.-J., Lee, H.-G. & Lee, H.-W. 2020, ApJ, 889, 2
  Line Formation of Raman-scattered He II λ4851 in an Expanding Spherical H I Shell in Young Planetary Nebulae

Co-author Publications:

- Lin, A., **Choi, B.-E.** & Werk, J. K. 2026, RNAAS, 10, 273
  A New Distance Constraint on Complex C Using SEGUE Spectra of Blue Horizontal Branch Stars
- Tran, D., Williams, B., …, **Choi, B.-E.**, et al. 2026, ApJ, 1006, 238
  Automated Computer Vision Cluster Identification in the Fireworks Galaxy
- Lim, J., Chang, S.-J., …, **Choi, B.-E.**, et al. 2025, ApJ, 979, 124
  High-resolution BOES Spectroscopy of Raman-scattered He IIλ6545 in Young Planetary Nebulae

- Angeloni, R., Gonçalves, D. R., ..., **Choi, B.-E.**, et al. 2019, AJ, 157, 156
  RAMSES II - RAMan Search for Extragalactic Symbiotic Stars: Project Concept, Commissioning, and Early Results from the Science Verification Phase

Awarded Observing Proposals

PI Programs:

2026	Gemini-S 8.1 m/GMOS	A Second Runaway Black-hole Wake? Testing a 96 kpc Streak with GMOS-S (Co-PI; FT, **4.04 hr**)
2026	Gemini-S 8.1 m/GMOS	Toward a Ca II Absorption Survey Along Milky Way Halo Star Sightlines: Constraining Magellanic Stream Mass and Formation History (**32 hr**)
2026	APO 3.5 m/ARCES	Probing Complex K as a Galactic Fountain Flow Using Ca II and Na I Absorption (**2 half-nights**)
2025	Gemini-S 8.1 m/GMOS	Toward a Ca II Absorption Survey Along Milky Way Halo Star Sightlines: Constraining Magellanic Stream Mass and Formation History (FT, **5.04 hr**)
2023	Gemini-S 8.1 m/GHOST	A Comprehensive Chemical Abundance Study of Thorne-Zytkow Object Candidate HV 2112 (FT, **3.75 hr**)
2023	APO 3.5 m/ARCES	Building a Spectroscopic Tool for a TZO Search: Investigation of the Chemical Abundances of Galactic RSGs Using ARCES (**4 half-nights**)
2022	APO 3.5 m/ARCES	Building a Spectroscopic Tool for a TZO Search: Investigation of the Chemical Abundances of Galactic RSGs Using ARCES (**2 half-nights**)

Co-I Programs:

(*) *Listed as Co-I, but served as* ***the primary contributor*** *in proposal writing, observing run, and data reduction.*

2025	APO 3.5 m/ARCES	Mapping Small-Scale Structure in Galactic Fountain Flows with M5 (**1 half-night**)
2021*	TNT 2.4 m/MRES	Deep Spectroscopic Survey of Raman-scattered He II Features in Planetary Nebulae (**5 nights**)
2020*	BOAO 1.8 m/BOES	Search for and Deep Spectroscopy of Raman He II Features in Young Planetary Nebulae (**6 nights**)
2020*	Gemini-N 8.1 m/GRACES	Deep High-resolution Spectroscopy of the Planetary Nebulae NGC 6886 and NGC 6790 (**3.2 hr**)
2020*	BOAO 1.8 m/BOES	Search for Raman He II Features in Young Planetary Nebulae (**7 nights**)
2020*	TNT 2.4 m/MRES	Search for Raman-Scattered He II Features in Young Planetary Nebulae (**3.65 nights**)
2019*	BOAO 1.8 m/BOES	Spectropolarimetry Monitoring of Raman-Scattered O VI Features in S-type Symbiotic Stars (**3 nights**)
2019	Gemini-N 8.1 m/GRACES	High-Resolution Spectroscopy of the Young and Compact Planetary Nebula J 900 (**1.6 hr**)
2019*	BOAO 1.8 m/BOES	Spectroscopic Survey of Raman-scattered He II Features in Planetary Nebulae (**6 nights**)

Awards & Grants

Oct 2025	Distinction in Research	| Astronomy Department, University of Washington
Jul 2023	Jacobsen Fund ($0.35k)	| Astronomy Department, University of Washington
Sep 2022	Distinction in Teaching	| Astronomy Department, University of Washington
Apr 2022	Jacobsen Fund ($1.7k)	| Astronomy Department, University of Washington
Feb 2021	Outstanding Research Award	| Graduate School, Sejong University
Oct 2019	Best Presentation Award	| Korean Physical Society

Teaching

Teaching Assistant, University of Washington

Spring 2022	Introduction to Astronomical Data Analysis (senior level)
Winter 2022	Astronomy (freshman level)
Fall 2021	Astronomy (freshman level)

Teaching Assistant, Sejong University

Fall 2020	Introduction to Astronomical Spectroscopy (junior level)
Spring 2020	Astrophysics (junior level)
Fall 2019	General Physics (freshman level)
Spring 2019	Astrophysics (junior level)
Fall 2018	Introduction to Astronomical Spectroscopy (junior level)

Mentoring

Annabelle Lin (undergraduate, UW) 2025–present
| Mapping cold clouds in the Milky Way's halo using SDSS low-resolution spectra

Werk SQuAD (undergraduate, UW) 2024–2025
| A collaborative group of undergraduate students working on galaxy and CGM spectroscopy, supervised by Prof. Jessica Werk (Carolyn Jeung, Skye Kelly, Annabelle Lin, Samuel McCarty, Pranathi Ramesh, Cyrus Taidi, Raeven Tan)

Abbas Jaffery (undergraduate, UW) 2022–2023
| Searching for Thorne-Żytkow Objects using high-resolution spectroscopy

Jimmy Fowler, Anaïs Martin & Pranathi Ramesh (undergraduate, UW) 2022
| Mapping the Galactic atmosphere with quasar spectroscopy

Talks & Presentations

Invited Seminars

ESO CGM Group Apr 2024
Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface

RSAA of Australian National University Jul 2023
Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface

Korea Evolved Stars Group Mar 2019
A New Grid-Based Monte Carlo Code for Raman-Scattered He II

Contributed Presentations

Everything FLOWS Workshop Oct 2026
Talk: Resolving a Galactic Fountain Flow in the Milky Way Halo

Galactic Metal Cycles Workshop May 2026
Talk: Resolving a Galactic Fountain Flow through Complex K

AAS 247th Meeting Jan 2026
Dissertation Talk: How Is the Galactic Weather?: Tracing the Baryon Cycle and Gas Flows in the Milky Way's Inner Atmosphere

CCA Accretion at the Disk-Halo Interface Workshop Nov 2025
Talk: Satellite Accretion and Galactic Fountain in the Milky Way Halo

MIAPbP - "Some Like It Hot": A Journey from the Hot IGrM to the Multiphase CGM Apr 2024

New Views on Feedback & the Baryon Cycle in Galaxies Jul 2023
Talk: The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface

AAS 241st Meeting Jan 2023
Talk: The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface

2022 IAUGA XXXI Aug 2022
Poster: Spectral Features and Variability of the Thorne-Żytkow Object Candidates in the SMC

Korean Astronomical Society 102nd Meeting Oct 2020
Talk: Discovery of Raman-scattered He II λ6545 in Planetary Nebulae NGC 6886 and NGC 6881 from BOES Spectroscopy
Poster: Activity of Korean Young Astronomers' Meeting in 2019-2020 Season (co-author)

2019 XVI Latin American Regional IAU Meeting Nov 2019
Poster: A Study of Line Formation of Raman-Scattered He II λ4851 in Young Planetary Nebulae

Korean Physical Society 96th Meeting Oct 2019
Poster: A New Grid-Based Radiative Transfer Simulation for Raman Scattering of He II with Atomic Hydrogen

Korean Astronomical Society 100th Meeting Apr 2019
Poster: A New Grid-based Monte Carlo Code for Raman Scattered He II: Preliminary Results

2019 Korea Young Astronomers' Meeting Workshop Feb 2019
Poster: Emission Line Formation in the Accretion Disk around a Schwarzschild Black Hole

Outreach

Flyer Designer, Astronomy on Tap Seattle 2023–2026
| Monthly public astronomy talks at local breweries, run by UW Astronomy graduate students
Pen Pal Volunteer, FIUTS, University of Washington 2022
| Letter exchange connecting international students with local elementary school students
Public talks at high schools (3 schools), South Korea 2020–2021
Staff, IAU GA 2021 Promotion Booth, Busan Science Festival Apr 2019
Volunteer Instructor, Seoul Observatory 2014–2016
Staff, Starry Night Festival, Sejong University 2014–2016

Professional Services

Member, UW Time Allocation Committee of APO 3.5 m Telescope 2023–2025
Student Co-reviewer, MNRAS 2024
Mentor, Pre-Major in Astronomy Program (Pre-MAP), UW 2022, 2024
Lab Instructor, Korean Astronomy Olympiad Jan 2021
Organizing Committee, Korean Young Astronomers' Meeting 2020
Journal Club Organizer, Astronomy Department, Sejong University 2019–2020
LOC Member, 1st Korean Lyman Alpha Workshop Jan 2019
Student Staff, Korean Astronomical Society Meeting Apr 2017

Technical Skills

Programming Language	Python, Fortran, MATLAB
Software & Codes	IRAF, Cloudy, CASA
Observing	Gemini 8.1 m (queue): GMOS (long-slit), GHOST (echelle), GRACES (echelle) APO 3.5 m (remote): ARCES (echelle) BOAO 1.8 m (on-site): BOES (echelle) + spectropolarimetry TNT 2.4 m (on-site): MRES (echelle)

References

Prof. Jessica Werk
Department of Astronomy, University of Washington
PhD Advisor
jwerk@uw.edu

Prof. Emily Levesque
Department of Astronomy, University of Washington
PhD Co-advisor
emsque@uw.edu

Dr. Andrew Fox
Space Telescope Science Institute
Collaborator on the Milky Way halo gas
afox@stsci.edu

Dr. Seok-Jun Chang
Max Planck Institute for Astrophysics
Collaborator on radiative transfer simulation
sjchang@mpa-garching.mpg.de