

Bo-Eun Choi

(she/her)

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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, <i>Cum Laude</i>	Feb 2019

Research Interests

CGM, ISM, Galaxy Evolution, Metallicity, Stellar Feedback, Spectroscopy, Radiative Transfer

Publications

Link to [ADS](#)/ [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 $\lambda 6545$ 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 $\lambda 4851$ in an Expanding Spherical H I Shell in Young Planetary Nebulae

Co-author Publications:

- 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 II $\lambda 6545$ 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

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

Awarded Observing Proposals

PI Programs:

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)

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) Mapping the cold clouds in the Milky Way's halo using SDSS low-resolution spectra	2024–present
Werk SQuAD (undergraduate, UW) 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)	2024–2025
Abbas Jaffery (undergraduate, UW) Searching for Thorne–Żytkow Objects Using High-Resolution Spectroscopy	2022–2023
Jimmy Fowler, Anaïs Martin & Pranathi Ramesh (undergraduate, UW) Mapping the Galactic atmosphere with quasar spectroscopy	2022

Talks & Presentations

Invited Seminars

ESO CGM Group Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface	Apr 2024
RSAA of Australian National University Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface	Jul 2023
Korea Evolved Stars Group A New Grid-Based Monte Carlo Code for Raman-Scattered He II	Mar 2019

Contributed Presentations

Galactic Metal Cycles Workshop Talk: Resolving a Galactic Fountain Flow through Complex K	May 2026
AAS 247th Meeting Dissertation Talk: How Is the Galactic Weather?: Tracing the Baryon Cycle and Gas Flows in the Milky Way's Inner Atmosphere	Jan 2026
CCA Accretion at the Disk-Halo Interface Workshop Talk: Satellite Accretion and Galactic Fountain in the Milky Way Halo	Nov 2025
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 Talk: The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface	Jul 2023
AAS 241st Meeting Talk: The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface	Jan 2023
2022 IAUGA XXXI Poster: Spectral Features and Variability of the Thorne-Zytkow Object Candidates in the SMC	Aug 2022
Korean Astronomical Society 102nd Meeting Talk: Discovery of Raman-scattered He II $\lambda 6545$ in Planetary Nebulae NGC 6886 and NGC 6881 from BOES Spectroscopy Poster: Activity of Korean Young Astronomers' Meeting in 2019-2020 Season (co-author)	Oct 2020
2019 XVI Latin American Regional IAU Meeting Poster: A Study of Line Formation of Raman-Scattered He II $\lambda 4851$ in Young Planetary Nebulae	Nov 2019
Korean Physical Society 96th Meeting Poster: A New Grid-Based Radiative Transfer Simulation for Raman Scattering of He II with Atomic Hydrogen	Oct 2019
Korean Astronomical Society 100th Meeting Poster: A New Grid-based Monte Carlo Code for Raman Scattered He II: Preliminary Results	Apr 2019
2019 Korea Young Astronomers' Meeting Workshop Poster: The Emission Line Formation in an Accretion Disk of Schwarzschild Black Hole	Feb 2019

Outreach

Astronomy on Tap (Seattle) Flyer Designer	2023–2026
IAUGA Staff, 2021 Busan Science Festival	Apr 2019
Volunteer Instructor, Observatory of Seoul	2014–2016
Starry Night Festival Staff, Sejong University	2014–2016

Professional Services

UW TAC of Apache Point Observatory ARC 3.5 m	2023–2025
Student Co-reviewer, MNRAS	2024
Organizing committee, Korean Young Astronomers' Meeting	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 (queue): GMOS (long-slit), GHOST (echelle), GRACES (echelle) APO 3.5 m (remote): ARCES (echelle) BOAO 1.8 m (on-site): BOES (echelle) spectroscopy and spectropolarimetry TNT 2.4 m (on-site): MRES (echelle)

References

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