Curriculum Vitae

BO-EUN CHOI

Department of Astronomy, University of Washington, Box 351580, Seattle, WA 98195-1700, USA
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EDUCATION

Ph.D. Student, Astronomy — from Sep. 2021
University of Washington, Seattle, USA

M.Sc., Astronomy — Jun. 2023
University of Washington, Seattle, USA

M.Sc., Astronomy and Space Science — Feb. 2021
Sejong University, Seoul, Korea — Advisor: Prof. Hee-Won Lee
Thesis: *Line Formation and Spectroscopic Survey of Raman-scattered He II Features in Young Planetary Nebulae*

B.Sc., Astronomy and Space Science / Physics, *Cum Laude* — Feb. 2019
Sejong University, Seoul, Korea

RESEARCH INTERESTS

- Circumgalactic Medium, Chemical Evolution & Baryon Cycle, Stellar Feedback, Stellar Evolution
- Spectroscopy, Spectropolarimetry
- Radiative Transfer, Scattering processes

PUBLICATIONS

ADS/ arXiv

- **Choi, B.-E.**, Werk, J. K. & Tchernyshyov, K., et al. in prep.
  "The 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"
- Angeloni, 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"

RESEARCH EXPERIENCE

- **Graduate Research Assistant**, University of Washington — from Sep. 2021
  - Advisor: Prof. Jessica K. Werk

  Metallicity study of the ionized diffuse gas at the Milky Way disk-halo interface using HST UV archival data with a precise ionization correction. This work traces the Galactic fountain mechanism and gas mixing in the Milky Way CGM.

  - Advisor: Prof. Emily M. Levesque

  Chemical abundance study of evolved massive stars to search for Thorne-Żytkow objects

- Post-master Researcher, UNIST — Mar. 2021 - Jul. 2021
  Advisor: Prof. Maurice van Putten
  3-body simulation to investigate orbital stability of prograding and retrograding circumbinary planets
- Graduate Research Assistant, Sejong University — Mar. 2019 - Feb. 2021
  Advisor: Prof. Hee-Won Lee
  - Spectroscopic survey of Raman-scattered He II features in young planetary nebulae
  - Radiative transfer for Raman-scattered He II in a thick H I medium of mass-losing evolved stars.
- Undergraduate Research Assistant, Sejong University — Mar. 2018 - Feb. 2019
  Advisor: Prof. Hee-Won Lee
  - Emission line formation study in an accretion disk of Schwarzschild black hole
  - Evaluation of quantum mechanical effects on absorption line profile of DLA systems

SUCCESSFUL OBSERVING PROPOSALS

- *Building a Spectroscopic Tool for a TŻO Search*
  - **3.75 hours** with **GHOST - 8.1 m Gemini-South** Telescope (2023B FT)
  - **4 nights** with **ARCES - 3.5 m ARC** Telescope (2022Q3, 2023Q2)
- *Spectroscopic Survey for Raman He II Features in Young Planetary Nebulae*
  - **4.8 hours** with **GRACES - 8.1 m Gemini-North** Telescope (2019A, 2020B)
  - **19 nights** with **BOES - 1.8 m BOAO** Telescope (2019A, 2020A&B)
  - **8.5 nights** with **MRES - 2.4 m Thai National** Telescope (Cycle7, 8)
- *Spectropolarimetry Monitoring of Raman-Scattered O VI Features in S-type Symbiotic Stars*
  - **3 nights** with **BOES - 1.8 m BOAO** Telescope (2019B)

CONFERENCES & SEMINAR

- **New Views on Feedback & the Baryon Cycle in Galaxies**, *Healesville, Australia* 17 - 21, Jul. 2023
  Talk: *The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface*
- Seminar Talk at the RSAA of Australian National University, *Canberra, Australia* 13, Jul. 2023
- **241st AAS meeting**, *Seattle, USA* 8 - 12, Jan. 2023
  Talk: *The Metallicity Mapping of the Ionized Diffuse Gas at the Milky Way Disk-halo Interface*
- **2022 XXXI IAUGA**, *Busan, Korea* 2 - 11, Aug. 2022
  Poster: *Spectral Features and Variability of the Thorne-Żytkow Object Candidates in the SMC*
- **102th Korean Astronomical Society Meeting**, *Online* 15 - 16, 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**, *Antofagasta, Chile* 3 - 9, Nov. 2019
  Poster: *A Study of Line Formation of Raman-Scattered He II λ4851 in Young Planetary Nebulae*
- **96th Korean Physical Society Meeting**, *Gwangju, Korea* 23 - 25, Oct. 2019
  Poster: *A New Grid-Based Radiative Transfer Simulation for Raman Scattering of He II with Atomic Hydrogen*
- **100th Korean Astronomical Society Meeting**, *Busan, Korea* 10 - 12, Apr. 2019
  Poster: *A New Grid-based Monte Carlo Code for Raman Scattered He II : Preliminary Results*
- **2019 Korea Young Astronomers' Meeting Workshop**, *Daejeon, Korea* 15 - 16, Feb. 2019
  Poster: *A Study of line formation in the Accretion Disk of Schwarzschild Black Hole*

AWARDS & SCHOLARSHIPS & GRANTS

Jacobsen Fund ($ 350), *Astronomy Department, University of Washington* 03, Jul. 2023

Outstanding TA Award, *Astronomy Department, University of Washington* 29, Sep. 2022

Jacobsen Fund ($ 1,700), *Astronomy Department, University of Washington* 18, Apr. 2022

Outstanding Research Award, *Graduate School, Sejong University* 19, Feb. 2021

Outstanding Presentation Award - Korean Physical Society 25, Oct. 2019
"A New Grid-Based Radiative Transfer Simulation for Raman Scattering of He II with Atomic Hydrogen"

TEACHING EXPERIENCE

Teaching Assistant, University of Washington
- Introduction to Astronomical Data Analysis (ASTR 480) Spring 2022
- ASTR 101 Fall 2021, Winter 2022

Teaching Assistant, Sejong University
- Introduction to Astronomical Spectroscopy (3rd year course) Fall, 2018 & 2020
- Astrophysics (3rd year course) Spring, 2019 & 2020
- General Physics 2 (1st year course) Fall, 2019

COMPUTING & SOFTWARE SKILLS

Highly experienced: Python, Fortran, IRAF, LaTeX
Moderately experienced: MATLAB, MPI
Basic knowledge of: CASA, CLOUDY
Operating Systems : Linux, Windows