


# Jinmi Yoon, Ph.D. Curriculum Vitae




@ jinmi.yoon@nd.edu       <https://jinmiyoon.github.io/>

 340D Nieuwland Science Hall




Department of Physics

University of Notre Dame, IN 46556 USA







## Education

- 2002 – 2008       **Ph.D. Physics (Astrophysics)**  
Department of Physics and Astronomy, Stony Brook University, NY, USA
- 1999 – 2002       **M.Sc. Physics**  
School of Physics, Seoul National University, Seoul, Republic of Korea
- 1995 – 1999       **B.Sc. Physics**  
Department of Physics, University of Seoul, Seoul, Republic of Korea  
(*graduated with a top honor and Dean's award for academic excellence*)

## Appointments

- 2017 – Present       **JINA-CEE Postdoctoral Fellow**  
Department of Physics and Joint Institute for Nuclear Astrophysics–Center for the evolution of the elements, University of Notre Dame, IN USA
- 2015 – 2017       **Postdoctoral Research Associate**  
Department of Physics and Joint Institute for Nuclear Astrophysics–Center for the evolution of the elements, University of Notre Dame, IN USA
- 2001–2002       **Adjunct faculty (lecturer and lab instructor)**  
Department of Physics, University of Seoul, Seoul, Republic of Korea

## Awards/Honors/Achievements

- 2017–present       JINA-CEE Postdoctoral Fellowship, University of Notre Dame
- 2016–present       AAS Astronomy Ambassador program cohort, Astronomical Society of the Pacific (ASP) & American Astronomical Society (AAS)
- 2000 – 2001       Brain Korea 21 scholarship, School of Physics, Seoul National University
- 1999       Dean's award (from the College of Liberal Arts and Sciences) for academic excellence, University of Seoul
- 1995 – 1998       Graduated with a top honor, the department of Physics, The University of Seoul
- 1995 – 1998       Scholarship for academic excellence/top 3 highest class rank, the department of Physics, University of Seoul

## Research Interests

Galactic archaeology	■ The nature of the first-generation of stars through chemodynamical analysis of the most metal-poor stars, in particular, carbon-enhanced metal-poor (CEMP) stars in the Galactic halo and ultra-faint dwarf (UFD) galaxies
Near-field cosmology	■ Formation and evolution of galaxies in the early Universe
Galactic chemical evolution	■ Evolution of chemical elements throughout the Galactic assembly history, in particular, its early enrichment history
Nuclear astrophysics	■ Origin and evolution of elements and first-star nucleosynthesis (quiescent stellar burning processes and neutron-capture processes such as s-process, i-process, and r-process occurring during evolution of the first stars)
Stellar Astrophysics	■ Stellar evolution and (rapid) rotation of intermediate-mass and massive stars

## Research Publications

\* An inactive publication gap during 2011-2015 is due to an extended family leave.

### Journal Articles

1. **Yoon, J.**, Beers, T. C., Tian, D. & Whitten, D. D. Origin of the CEMP-no Group Morphology in the Milky Way. *The Astrophysical Journal* **878**, 97 (June 2019).
2. **Yoon, J.**, Whitten, D. D., Beers, T. C., Lee, Y. S. & Placco, V. M. Identification of a Group III CEMP-no Star in the Dwarf Spheroidal Galaxy Canes Venatici I. *The Astrophysical Journal* *submitted* (2019).
3. **Yoon, J.**, Beers, T. C., Dietz, S., Lee, Y. S., Placco, V. M., Da Costa, G., Keller, S., Owen, C. I. & Sharma, M. Galactic Archeology with the AEGIS Survey: The Evolution of Carbon and Iron in the Galactic Halo. *The Astrophysical Journal* **861**, 146 (July 2018).
4. Lee, Y. S., Beers, T. C., Kim, Y. K., Placco, V., **Yoon, J.**, Carollo, D., Masseron, T. & Jung, J. Chemical Cartography. I. A Carbonicity Map of the Galactic Halo. *The Astrophysical Journal* **836**, 91 (Feb. 2017).
5. Placco, V. M., Frebel, A., Beers, T. C., **Yoon, J.**, Chiti, A., Heger, A., Chan, C., Casey, A. R. & Christlieb, N. Observational Constraints on First-Star Nucleosynthesis. II. Spectroscopy of an Ultra metal-poor CEMP-no Star. *The Astrophysical Journal* **833**, 21 (Dec. 2016).
6. **Yoon, J.**, Beers, T. C., Placco, V. M., Rasmussen, K. C., Carollo, D., He, S., Hansen, T. T., Roederer, I. U. & Zeanah, J. Observational Constraints on First-star Nucleosynthesis. I. Evidence for Multiple Progenitors of CEMP-No Stars. *The Astrophysical Journal* **833**, 20 (Dec. 2016).
7. Hansen, T. T., Andersen, J., Nordström, B., Beers, T. C., Placco, V. M., **Yoon, J.** & Buchhave, L. A. The role of binaries in the enrichment of the early Galactic halo. III. Carbon-enhanced metal-poor stars - CEMP-s stars. *Astronomy & Astrophysics* **588**, A3 (Apr. 2016).
8. Hansen, T. T., Andersen, J., Nordström, B., Beers, T. C., Placco, V. M., **Yoon, J.** & Buchhave, L. A. The role of binaries in the enrichment of the early Galactic halo. II.

Carbon-enhanced metal-poor stars: CEMP-no stars. *Astronomy & Astrophysics* **586**, A160 (Feb. 2016).

9. Hansen, T. T., Andersen, J., Nordström, B., Beers, T. C., **Yoon, J.** & Buchhave, L. A. The role of binaries in the enrichment of the early Galactic halo. I. r-process-enhanced metal-poor stars. *Astronomy & Astrophysics* **583**, A49 (Nov. 2015).
10. **Yoon, J.**, Peterson, D. M., Kurucz, R. L. & Zagarello, R. J. A New View of Vega's Composition, Mass, and Age. *The Astrophysical Journal* **708**, 71–79 (Jan. 2010).
11. **Yoon, J.**, Peterson, D. M., Zagarello, R. J., Armstrong, J. T. & Pauls, T. The Effect of Rotation on the Spectrum of Vega. *The Astrophysical Journal* **681**, 570–578 (July 2008).
12. **Yoon, J.**, Peterson, D. M., Armstrong, J. T., Clark James H., I., Gilbreath, G. C., Pauls, T., Schmitt, H. R. & Zagarello, R. J. The Effect of Rotation on Calibrators for Ground-based Interferometry. *Publications of the Astronomical Society of the Pacific* **119**, 437–443 (Apr. 2007).

### Pre-prints

13. Aprahamian, A., Surman, R., Frebel, A., McLaughlin, G. C., Arcones, A., Balantekin, A. B., Barnes, J., Beers, T. C., Holmbeck, E. M., **Yoon, J.**, Brodeur, M., Sprouse, T. M., Vassh, N., Cizewski, J. A., Clark, J. A., Cote, B., Couch, S. M., Eichler, M., Engel, J., Ezzeddine, R., Fuller, G. M., Giuliani, S. A., Grzywacz, R., Han, S., Horowitz, C. J., Kankainen, A., Korobkin, O., Kwiatkowski, A. A., Lawler, J. E., Lippuner, J., Litvinova, E., Mathews, G. J., Mumpower, M. R., Naimi, S., Nazarewicz, W., O'Connor, E., O'Shea, B. W., Perego, A., Perdikakis, G., Radice, D., Richers, S., Roberts, L. F., Robin, C., Roederer, I. U., Siegel, D. M., Schunck, N., Spyrou, A. & Zhu, Y.-L. *FRIB and the GW170817 Kilonova* Sept. 2018. arXiv: 1809.00703 [astro-ph.HE].

### Conference Proceedings

14. Dietz, S., Beers, T. C., Placco, V. M., **Yoon, J.** & AEGIS Collaboration. *Kinematic and Chemical Analysis of AEGIS Survey Stars in IAUS 334 Rediscovering Our Galaxy* (eds Chiappini, C., Minchev, I., Starkenburg, E. & Valentini, M.) **334** (Aug. 2018), 283–284. doi:10.1017/S1743921317006895.
15. Lee, Y. S., Beers, T. C., **Yoon, J.**, Kim, Y. K. & Jeong, J. *Assembly of the Galactic Halo System Based on Carbon-Enhanced Metal-Poor Stars in IAUS 334 Rediscovering Our Galaxy* (eds Chiappini, C., Minchev, I., Starkenburg, E. & Valentini, M.) **334** (Aug. 2018), 327–328. doi:10.1017/S1743921317007529.
16. Rasmussen, K. C., Beers, T. C., Placco, V. M., **Yoon, J.** & Dietz, S. *Measurement of  $[Fe/H]$  and  $[C/Fe]$  for Metal-Poor Stars from the RAVE Survey in IAUS 334 Rediscovering Our Galaxy* (eds Chiappini, C., Minchev, I., Starkenburg, E. & Valentini, M.) **334** (Aug. 2018), 353–354. doi:10.1017/S1743921317007001.
17. **Yoon, J.**, Whitten, D. D., Beers, T. C., Placco, V. M., Lee, Y. S., Dietz, S., Gudin, D. & Rasmussen, K. C. *Lifting the Veil on Ultra Metal-Poor Stars in the Outermost Halo in IAUS 334 Rediscovering Our Galaxy* (eds Chiappini, C., Minchev, I., Starkenburg, E. & Valentini, M.) **334** (Aug. 2018), 389–390. doi:10.1017/S174392131700792X.

18. **Yoon, J.**, Peterson, D. M., Armstrong, T., Clark James H., I., Gilbreath, C., Pauls, T. & Schmitt, H. R. *Early type stars as calibrators for ground-based interferometry in Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series* **6268** (June 2006), 626848.  
doi:10.1117/12.670309.

## Presentations

### Invited Talks and Seminars

- Jun 2019 ■ “We are Star Stuff: Galactic Archaeology and the Origin of the Elements”, REU seminar talk, University of Notre Dame, IN
- May 2019 ■ “First-star nucleosynthetic imprints in the Milky Way and its satellite dwarf galaxies”, 2019 JINA-CEE Frontiers meeting, East Lansing, MI
- Dec 2018 ■ “Decoding the Stellar Fossils of the First Stars”, Astronomy colloquium talk, Astronomy program at Seoul National University, Seoul, Korea
- “Unraveling the Assembly History of the Galactic halo with CEMP-no Stars”, Colloquium talk, Korea Astronomy and Space Science Institute, Daejeon, Korea
- Oct 2017 ■ “Galactic Archeology: Study of the Early Universe with Ancient Stars”, the department of Physics and Astronomy at Indiana University at South Bend, South Bend, IN
- Jul 2017 ■ “Galactic Archeology: Study of the Early Universe with Metal-Poor Stars”, Astronomy seminar at Department of Astronomy & Space Science, Chungnam National University, Daejeon, Korea
- Sep 2016 ■ “Near-Field Cosmology with Carbon-Enhanced Metal-Poor stars”, Astrophysics seminar, at Department of Physics, University of Notre Dame, IN

### Contributed Talks

- Sep 2019 ■ “Origin of CEMP-no morphology in the Milky Way halo” at CEMP stars as Probes of First-Star Nucleosynthesis, the IMF, and Galactic Assembly, University of Geneva, Switzerland
- Dec 2018 ■ “The Origin of CEMP-no: Connection to the Satellite Dwarf Galaxies” at Stellar Archeology as a Time Machine to the First Stars, Kavli IPMU, Japan
- May 2018 ■ “Near Field Cosmology with most metal-poor stars” at Enzo Workshop 2018, Atlanta, GA
- Nov 2017 ■ “Lifting the Veil of Ultra Metal-Poor stars in the Outermost Galactic Halo” at A Celebration of CEMP & Gala of GALAH workshop, Melbourne, Australia
- Aug 2017 ■ “Lifting the Veil of Ultra Metal-Poor stars in the Outermost Galactic Halo” at Giant Magellan Telescope Community meeting, Tarrytown, NY
- Feb 2017 ■ “Best and Farthest: Searching for Ultra Metal-Poor stars in the Outermost Galactic Halo” at JINA-CEE Frontiers meeting, Lansing, MI
- Jan 2017 ■ “Best and Farthest: Searching for Ultra Metal-Poor stars in the Outermost Galactic Halo” at 229th American Astronomical Society Meeting, Grapevine, TX
- Sep 2016 ■ “Evidence for Multiple Progenitors of CEMP-no Stars” at Precision Spectroscopy 2016 workshop, Porto Alegre, Brazil

## Presentations (continued)

- Oct 2008    ■ “Updating Vega’s mass, age, and evolutionary status” at the Astronomical Society of New York, New York, IN
- Apr 2007    ■ “The effects of rotation on early type stars as ground-based interferometry calibrators” at the Astronomical Society of New York, Albany, NY

## Posters

- Jul 2017    ■ “Lifting the Veil of Ultra Metal-Poor stars in the Outermost Galactic Halo” at 334 IAU symposia, Potsdam, Germany
- Apr 2017    ■ “Searching for Ultra Metal-Poor stars in the Outermost Galactic Halo” at JINA-CEE NSF review site visit, Michigan State University, East Lansing, MI
- Aug 2016    ■ “Absolute Carbon Abundance Distribution of Carbon-Enhanced Metal-Poor stars” at The First Stars conference, Heidelberg, Germany
- Mar 2016    ■ “Carbon Plateaus among Carbon-Enhanced Metal-Poor stars” at 2016 JINA-CEE frontiers meeting, South Bend, IN
- Jan 2016    ■ “Carbon Plateaus among Carbon-Enhanced Metal-Poor stars” at 227th American Astronomical Society meeting, Kissimmee, FL
- Jun 2015    ■ “Tracing Ultra Faint Dwarf galaxies with CEMP-no stars” at Local Group Astrostatistics conference, University of Michigan at Ann Arbor, MI
- Mar 2015    ■ “Searching for Ultra Faint Dwarf galaxies using CEMP-no stars” at JINA-CEE frontiers in Nuclear Astrophysics, Michigan State University, East Lansing, MI
- May 2006    ■ “Early type stars as calibrators for ground-based interferometry” at the International Society for Optical Engineering, Orlando, FL

## Observations/Proposals

- 2016 – Present    ■ **Large Binocular Telescope (LBT)**  
     – PEPSI (as Co-I) 2017B (5 hours)  
     – MODS (as PI) 2016B (2.8 hours), 2017A (12 hours), 2017B (4 hours), 2018A (4 hours), 2018B (1.5 hours), 2019A (2 hours)
- 2017 – Present    ■ **Gemini Telescope**  
     – GMOS (as Co-I) Gemini Fast turnaround program 2017A (5.5 hours granted)  
     – GMOS (as PI) Gemini Fast turnaround program 2017B (6.3 hours granted)

## Research Experience

- 2018–Present    ■ **Galactic chemical evolution with Dr. Benoit Côté (Konkoly Observatory, Hungary)**  
     Simulations of the chemical enrichment and stellar feedback, in particular, of the early generation of stars using the JINA-CEE NuGrid pipeline (<https://nugrid.github.io/NuPyCEE/index.html>) and comparison between the theoretical chemical yields and the observational data of the most metal-poor stars in the halo.  
     • Implementation of stochastic star formation into the GCE simulations

## Research Experience (continued)

- 2015–Present    **Galactic archaeology with Prof. Timothy C. Beers**  
 JINA-CEE Postdoctoral Fellow (2017–present) and Postdoctoral Associate (2015–2017) at the department of Physics and JINA-CEE, University of Notre Dame
- Observations of extremely metal-poor carbon stars with the Large Binocular Telescopes MODS and Gemini GMOS
  - The origin of CEMP-no groups: connection to the satellite dwarf galaxies
  - Galactic Chemical Evolution
  - Study of first-star nucleosynthesis using CEMP Stars
  - *Best and Farthest Survey* searching for ultra metal-poor stars in the outermost Galactic halo using both Large Binocular Telescopes, Gemini telescopes.
  - Kinematical analyses of the Galactic halo stars
  - Study of Galactic formation and evolution via metallicity ( $[Fe/H]$ ) and carbonicity ( $[C/Fe]$ ) using the AEGIS program stars observed from the Southern Hemisphere
  - Metallicity ( $[Fe/H]$ ) gradient in the retrograde outer halo
- 2014–2015    **Galactic archaeology with Prof. Timothy C. Beers**  
 Researcher at the department of Physics and JINA-CEE, University of Notre Dame
- Studied the association of CEMP stars without strong enhancement in heavy metals (so-called CEMP-no stars) with UFD satellite galaxies to discover new UFD galaxies
- 2004–2008    **Stellar Rapid Rotation and Evolution of A and F stars with Prof. Deane M. Peterson**  
 Graduate Research Assistant at the department of Physics and Astronomy, Stony Brook University Ph. D. Dissertation titled “Rotation and Evolution of A and F stars”
- Unlike late-type stars such as Sun, early-type stars such as A and F stars rotate rapidly, faster than 50% breakup. Since rotation obscures the interpretation of the observed data, my main work was to decouple rotational effects from physical properties such as temperature, radius, mass, and in turn age by measuring accurate and precise true rotational velocity by using both high angular resolution interferometry and high-resolution spectroscopy. By doing so, I reinterpreted the composition, mass, and age of Vega, a rapid rotator.
- Summer 2004    **Stellar Imager Design Reference Mission with Prof. Fred Walter**  
 Graduate Research Assistant at the department of Physics and Astronomy, Stony Brook University
- Developed the observation scheduling code using IDL language
- Summer 2003    **Photometry Reduction with Prof. Michal Simon**  
 Graduate Research Assistant at the department of Physics and Astronomy, Stony Brook University
- 2000–2001    **High Energy Physics with Prof. Soo-Jong Rey**  
 Graduate Research Assistant at the School of Physics, Seoul National University  
 Master of Science thesis titled "Closed string dynamics in tensor fields"

## External Funding/Travel Grants

- Dec 2018    ■ Travel grant from a conference, Stellar Archeology as a Time Machine to the First Stars, IMPU, Japan
- AAS 2018B International travel grant for a travel to a conference, Stellar Archeology as a Time Machine to the First Stars, Kavli IPMU, Japan
- Jul 2018    ■ Full travel grant from a workshop, FRIB Theory Alliance r-process meeting
- May 2018    ■ Full travel grant from ENZO user tutorial workshop
- Nov 2017    ■ AAS 2017B International travel grant for a trip to a conference, A celebration of CEMP and gala of GALAH, Melbourne, Australia
- Jul 2017    ■ IAU travel grant, Rediscovering the Galaxy, IAU symposium 334 at Potsdam, Germany
- Jan 2017    ■ Travel grant from Astronomical Society of Pacific & AAS to participate AAS Astronomy Ambassador Program
- Jun 2006    ■ Partial travel grant from Astronomical Society of New York to attend Michelson Summer Workshop in Pasadena, Caltech
- Partial Travel Grant from Michelson Summer Workshop, in Pasadena, Caltech
- Research Travel Award from Stony Brook University Graduate Student Organization to attend Michelson Summer Workshop, in Pasadena, Caltech
- 2000–2001   ■ Brain Korea 21 scholarship, School of Physics, Seoul National University
- 1996–1998   ■ Full Scholarship (full tuition waived for 3 years) for 3 highest class rank, Department of Physics, University of Seoul
- 1995   ■ Scholarship (tuition partially waived for a semester), Department of Physics, University of Seoul

## Grant Review Experience and Workshops

- Mar 2019    ■ NSF Astronomy & Astrophysics Grant Review panelist
- May 2018    ■ Writing Successful Grants workshop held at the University of Notre Dame

## Teaching Experience

- May 2019    ■ Summer school lecturer, JINA-CEE First Frontiers Summer School, Michigan State University, East Lansing, MI
  - Lecture about stellar evolution and elemental production processes
- 2002–2004   ■ Graduate Teaching Assistant, Department of Physics and Astronomy, Stony Brook University
  - Introductory Astronomy, Planetary Sciences, Physics Labs
- 2001–2002   ■ Adjunct Faculty (lecturer and Lab instructor), Department of Physics, University of Seoul
  - Introductory Physics I and II classes for engineering and science students
- 1999–2001   ■ Graduate Teaching Assistant, School of Physics, Seoul National University
  - Grading for introductory Physics I and II classes for engineering and science students
- 1998–1999   ■ Undergraduate Teaching Assistant, Department of Physics, University of Seoul



## Teaching Experience (continued)

- Tutoring teaching university-level physics to a high school student

## Teaching Workshops

- Attended several teaching workshops held at University of Notre Dame (Kaneb Center for Teaching and Learning)
- Nov 2017 ■ Beyond the Abstract: Teaching with Scientific Literature
- Maker Series: Adobe Spark Video
- Oct 2017 ■ Preparing for the Academic Job Search IV: Writing a Teaching Statement
- Sep 2017 ■ James Lang Small Teaching Book Presentation
- Apr 2017 ■ A Landscape View of Digital Teaching and Learning: How to Jump in
- Helping Students in Distress
- Jan 2017 ■ Understanding and Fostering Student Motivation
- Nov 2016 ■ Teaching Writing across Disciplines
- Sep 2016 ■ Foundations of Teaching in STEM Session I-IV
- Jan 2016 ■ Once Upon a Time: Storytelling as a Tool for Teaching and Learning

## Mentoring Experience

- 2019–Present ■ Leading and mentoring a group of graduate students (Dmitrii Gudin, Devin Whitten, and Joseph Zepeda) for a project (CCSLab), which analyzes very cool ( $3500 < T_{\text{eff}} < 4500 \text{ K}$ ) CEMP stars and develops a python stellar parameter pipeline package for cool CEMP stars.
- 2017–2018 ■ Di Tian (REU student at University of Notre Dame and undergraduate student from Xi'an Jiaotong University, China)
  - now a Ph D student at Tsinghua University
  - kinematics studies of the high latitude high proper motion stars
  - Explored  $A(C)$ – $[Fe/H]$  relation of satellite dwarf galaxies
  - Led to a publication for the Astrophysical Journal (Yoon et al., 2019, ApJ, 878,97)
- 2017–Present ■ Dmitrii Gudin (Graduate student at University of Notre Dame)
  - Study of galaxy formation via data of metal poor stars from cosmological simulations and the project CCSLab.
- Devin Whitten (Graduate student at University of Notre Dame)
  - Developing a novel technique to derive reliable stellar parameters for very cool carbon stars
  - Led to two publications in the Astrophysical Journal (Yoon et al., 2019, 878, 97 and Yoon et al., 2019, ApJ submitted) and two articles in preparation (“CCSLab: stellar parameter pipeline for very cool carbon enhanced stars” & “Where are ultra metal-poor stars found in the Galaxy?”)



## Mentoring Experience (continued)

- 2016–Present    ■ Sarah Dietz (Graduate student at University of Notre Dame)  
 – Kinematics studies of the metal-poor stars and metallicity gradient in the Galactic halo  
 – Published two articles (Dietz et al. 2018, Proceedings of IAU S334, 329 and Yoon et al. 2018, ApJ, 861, 146) and two in prep ("Kinematic study of the MWTD with the AEGIS survey" & "Metallicity Gradient in the Outermost Galactic Halo")
- 2015–2016    ■ Kaitlin Rasmussen (Graduate student at University of Notre Dame)  
 – First-star nucleosynthesis using CEMP stars  
 – led to two publications (Yoon et al., 2016, ApJ, 833, 20 & Rasmussen et al. 2018, Proceedings of IAU S334, 353)
- Summer 2005    ■ Danielle Kumpulanian (REU student from Rensselaer Polytechnic Institute at Stony Brook University)  
 – Helping basic linux operation and programming

## Outreach Activities

- Apr 2019    ■ *Our Universe Revealed* series, an outreach public program at the Department of Physics at University of Notre Dame  
 – A public outreach talk titled "Galactic Archeology"
- Feb 2019    ■ South Bend community science fair 'Science Alive' for general public audience  
 – Lead an activity of explaining body composition and the origins of the elements
- Aug 2017    ■ Great American Solar Eclipse  
 – Help with public observation
- Jun 2016    ■ JINA-CEE Art2Science Camp for 2-8th grade students  
 – Leading Atomic spectroscopy activity
- Apr 2016    ■ Michiana Astronomical Society Meeting, South Bend, IN  
 – A public outreach talk titled "Galactic Archeology: Search for the oldest stars"
- Feb 2016    ■ South Bend community science fair 'Science Alive' for general public audience  
 – led an activity explaining the nature of outer space using vacuum chambers
- 2016–Present    ■ AAS Astronomy Ambassador
- 2004–2008    ■ Public observation sessions at Stony Brook University

## Professional Associations

- 2016–Present    ■ AAS Astronomy Ambassador cohort 2016
- 2016    ■ Astronomical Society of Pacific (ASP)
- 2015–Present    ■ Joint Institute for Nuclear Astrophysics–Center for the Evolution of the Elements
- 2006–Present    ■ American Astronomical Society (AAS)

## Service

- 2019–Present    ■ Serving as a mentor for Advancing Women Leaders program at University of Notre Dame
- May 2019      ■ Co-organizer and lecturer, First Frontiers Summer School, Michigan State University, East Lansing, MI
- Mar 2019      ■ Grant review panelist, National Science Foundation, 2019 Astronomy and Astrophysics Grant Review
- May 2018      ■ Organizing chairperson, JINA-CEE Frontiers in Nuclear Astrophysics, University of Notre Dame, IN
  - Featured at <http://www.jinaweb.org/docs/Newsletters/JINA-CEE-Newsletter-September-2018Final.pdf>
  - Overseeing local and scientific organizing for both Junior Researchers Workshop (~ 70 people) and the main conference (~ 130 people)
  - The main conference consisted of invited science talks, contributed talks, poster sessions, and breakout sessions.
  - Offered a diversity & inclusion talk titled as “Blinded to Excellence” based on neuroscience and behavioral studies.
  - Junior Research Workshop offered scientific writing, grant writing, publishing AAS journals, speaking skills, outreach workshop along with overview talks and contributed talks
- Feb 2017      ■ Co-organizer, JINA-CEE Frontiers in Nuclear Astrophysics, East Lansing
  - Session chair, Junior Researcher workshop, JINA-CEE Frontiers in Nuclear Astrophysics, East Lansing, MI
- Mar 2016      ■ Co-organizer, JINA-CEE Frontiers in Nuclear Astrophysics, South Bend, IN
- 2016 – Present    ■ AAS Astronomy Ambassador, Astronomical Society of Pacific and American Astronomical Society

## Miscellaneous Experience

### Computing and Data Science

- Coding languages    ■ C, Python, IDL
- Data science        ■ Python, CFITSIO, R, PostgreSQL, MATPLOTLIB, PGPLOT, GNUPLOT
- Spectroscopy        ■ SMH, IRAF, SSPP, n-SSPP, MOOG, SYNTHE, modsCCDRed
- Simulations         ■ NuPyCEE pipeline (Galactic Chemical Evolution codes), galpy (Kinematics code), ROCHE (Rotating star modeling code)

### Project Management

- 2018–present      ■ Project leader and mentor (of 3 graduate students) for the CCSLab project group, which analyzes very cool ( $3500 < T_{\text{eff}} < 4500$  K) carbon-enhanced metal-poor stars and is developing a python stellar parameter pipeline package, University of Notre Dame
- 2018–Present      ■ Leading a project which explores metallicity gradient in the Galactic halo and mentoring a graduate student, Sarah Dietz, for this project

## Miscellaneous Experience (continued)

- 2017–2018    ■ Organizing chair for 2018 JINA-CEE Frontiers meeting (130+ people) and Junior researchers workshop (~ 70 people), University of Notre Dame and Joint Institute for Nuclear Astrophysics–Center for the Evolution of the Element
- Fall 1998    ■ Physics Department administrative assistant, University of Seoul, Seoul, Korea

## Media/Press/Newsletters

- Sep 2018    ■ Frontiers in Nuclear Astrophysics meeting 2018 featured at JINA-CEE newsletter (<http://www.jinaweb.org/docs/Newsletters/JINA-CEE-Newsletter-September-2018Final.pdf>)
- Dec 2016    ■ “Second-generation stars identified, giving clues about their predecessors”, by Brian Wallheimer featured at Notre Dame News (<http://news.nd.edu/news/second-generation-stars-identified-giving-clues-about-their-predecessors/>), Science Daily, Phys.org, EurekAlert, eScience News.
- Aug 2016    ■ “Evidence for multiple progenitors for CEMP-no stars”, featured at JINA-CEE newsletter (<http://www.jinaweb.org/docs/Newsletters/JINA-CEE-Newsletter-4-2016.pdf>)
- Jul 2016    ■ “Hints of Universe’s Very First Stars”, by Bruce Dorminey featured at Forbes magazine (<http://www.forbes.com/sites/brucedorminey/2016/07/31/astonomers-characterize-cosmos-first-stars/#439b6fa86603>)

## References

**Timothy C. Beers**  
 Grace-Rupley Professor  
 Department of Physics and JINA-CEE  
 University of Notre Dame  
 Notre Dame, IN 46556 USA  
 ☎ +1-574-631-4088  
 ✉ [tbeers@nd.edu](mailto:tbeers@nd.edu)

**Volker Bromm**  
 Professor  
 Department of Astronomy  
 University of Texas at Austin  
 Austin, TX 78712 USA  
 ☎ +1-512-471-3432  
 ✉ [vbromm@astro.as.utexas.edu](mailto:vbromm@astro.as.utexas.edu)

**Young Sun Lee**  
 Assistant Professor  
 Department of Astronomy & Space Science  
 Chungnam National University  
 Daejeon 34134, South Korea  
 ☎ +82-42-821-5466  
 ✉ [youngsun@cnu.ac.kr](mailto:youngsun@cnu.ac.kr)

**Ian U. Roederer**  
 Associate Research Scientist  
 Department of Astronomy  
 University of Michigan  
 Ann Arbor, MI 48109, USA  
 ☎ +1-734-615-7374  
 ✉ [iur@umich.edu](mailto:iur@umich.edu)