

## HYEIN YOON

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## CURRENT POSITION

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|---|--------------------|
| <b>ASKAP–FLASH Project Scientist</b>  | Oct 2021 – Present |
| ASKAP–FLASH (First Large Absorption Survey in H I) Survey Science Team, Australia |                    |
| <b>ASTRO 3D Postdoctoral Research Associate</b>                                   | Sep 2019 – Present |
| The University of Sydney, Australia (Supervisor: Prof. Elaine Sadler)             |                    |

## EDUCATION

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| <b>Ph.D. in Astronomy</b>  | Aug 2019 |
| Yonsei University, South Korea   |          |
| <ul style="list-style-type: none"><li>- <b>Thesis:</b> The Impact of Large-scale Environments on Galaxy Evolution: Insights from the Neutral Hydrogen Gas in Galaxies Inside and Outside of the Virgo Cluster</li><li>- <b>Thesis Committee:</b> Prof. Aeree Chung (Yonsei/Supervisor), Dr. O. Ivy Wong (CSIRO), Prof. Sukyoung K. Yi (Yonsei), Prof. Myungkook James Jee (Yonsei), Prof. Ho Seong Hwang (SNU)</li></ul> |          |
| <b>M.S. in Astronomy</b>   | Feb 2013 |
| Yonsei University, South Korea   |          |
| <ul style="list-style-type: none"><li>- <b>Thesis:</b> Diagnostics to Probe Environmental Effects on Late-type Galaxies in the Virgo Cluster</li><li>- <b>Thesis Committee:</b> Prof. Aeree Chung (Yonsei/Supervisor), Prof. Yong-Ik Byun (Yonsei), Prof. Soo-Chang Rey (CNU)</li></ul>  |          |
| <b>B.S. in Astronomy, Physics</b>  | Feb 2011 |
| Yonsei University, South Korea (Double major)  |          |

## RESEARCH INTERESTS

Neutral atomic hydrogen (H I) surveys — H I absorption and emission lines — Environmentally-driven galaxy evolution — Radio data processing — Data quality assessment — Automatic spectral line finding

## RESEARCH EXPERIENCE AND ADVANCED EDUCATION

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| <b>Project Scientist, ASKAP–FLASH Project</b>  | 2021 – Present                             |
| - Observing H I 21-cm absorption, Data validation and quality checks for ASKAP commissioning   |  |
| <b>Postdoctoral researcher, The University of Sydney</b>   | 2019 – Present                             |
| - FLASH pilot survey to detect H I 21-cm absorption lines toward $0.4 < z < 1.0$   |  |
| <b>Research assistant, Yonsei University</b>   | 2011 – 2013 (Master) / 2013 – 2019 (Ph.D.) |
| - Studying H I emission of galaxies in various density environments  |  |
| <b>Visiting researcher at ICRAR/UWA</b>  | 2016 – 2017 (7 months)                     |
| - International Centre for Radio Astronomy Research/University of Western Australia  |  |
| - awarded Australian Government Endeavour Research Fellowship – Host: Dr. O. Ivy Wong (CSIRO)  |  |
| <b>Advanced schools/training/visits:</b>   |  |
| - ATCA observer/DA training (2016, 2020, 2022), Pawsey training course (2019), NRAO 14th synthesis imaging school (2014), Research/observation visits (JVLA, GMRT, NRO, FAST, KVN and more, 2012 – 2018) |  |

## TEACHING/MENTORING EXPERIENCE

- Student mentoring (2019 – Present):** CSIRO summer student program (Lan Tran), PhD students in the FLASH team (Renzhi Su, Simon Weng, Emily Kerrison)
- Unit coordinator at the University of Sydney:** Data Science in Astronomy: Algorithms (OLET1618; Semester 1/Semester 2 2020)
- Teaching Assistant at Yonsei University:** Astrophysics II (Fall 2012), Radio astronomy (Spring 2012), Understanding of Space (Fall/Spring 2011)

## OBSERVING EXPERIENCE AND SUCCESSFUL PROPOSALS

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**Korean VLBI Network (90 hours, PI of 2022A\_0286)**

**Australia Telescope Compact Array (11.5 hours, PI of CX473 + Duty astronomer)**

**Westerbork Synthesis Radio Telescope, 72-m configuration (96 hours, PI of R14A011)**

**Karl G. Jansky Very Large Array, D-configuration (7.5 hours, PI of 14A-304)**

**Giant Metrewave Radio Telescope (20 hours, PI of 25\_034)**

**Co-I projects: e-MERLIN (CY12212), JVLA (21A-310), MeerKAT (MKT-20135), GMRT (43\_078, 43\_076, 40\_096, 40\_092, 36\_002), ATCA (C3515, C3392), NRO 45-m (CG121032, CG112025)**

## PRESENTATIONS (SELECTED, LAST 3 YEARS)

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**IAU General Assembly 2022 Division J (in-person), Symposium 373 (e-talk), Korea, Aug 2022**

**2022 ASTRO 3D Science Meeting, Australia June 2022 (in-person)**

**SfA Astro Morning Tea talk, University of Sydney, Australia, Mar 2022, June 2021 (remote)**

**2021 ASTRO 3D Science Meeting, Australia, Sep 2021 (remote)**

**2021 Astronomical Society of Australia - Annual Science Meeting, Australia, July 2021 (remote)**

**East-Asia SKA workshop, Japan, May 2021 (remote)**

**Co-learnium, CSIRO, Australia, Jan 2021 (remote)**

**Meeting of the Korean Astronomical Society, Korea, Oct 2020 (remote, poster)**

**236th Meeting of the American Astronomical Society, USA, June 2020 (remote)**

## GRANTS, AWARDS, AND SCHOLARSHIPS

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**Research Travel Grant:** Korea Center for Woman in Science/Engineer/Technology (WISET), 2018

**Award for Student Poster Competition:** “Yonsei Astro Poster Jamboree” - Yonsei University, 2017

**Endeavour Research Fellowship:** Australian Government, 2016

**BK21 Plus Scholarship:** National Research Foundation of Korea, 2013 – 2016

**BK21 Scholarship:** National Research Foundation of Korea, 2011 – 2012

**Teaching/Research Assistantship:** Yonsei University, 2011 – 2012

**Honors:** Yonsei University, 2010

**Truth Scholarship (University Designated):** Yonsei University, 2009 – 2010

**Yonsei Internal/External Scholarship:** Yonsei University, 2009

## SERVICE AND OUTREACH

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**Session chair:** Session chair for “IAU General Assembly Division J Galaxies and Cosmology”, 2022

**Local organizer:** Co-organizer of weekly SfA Morning Tea, University of Sydney, 2022

**Science organizer & Session chair:** SOC and Session chair for “2021 ASTRO 3D Science Meeting”, 2021

**Local organizer:** University of Sydney node coordinator for ASTRO 3D NSW Nodes Monthly Meeting, 2021

**Duty Astronomer:** ATCA duty astronomer, Oct 2020

**Mentoring for juniors:** Korea Center for Woman in Science/Engineer/Technology (WISET), 2018 – 2019

**Global mentoring for career development:** WISET and General Electrics, 2018

**Local organizer:** LOC for “SKA in Seoul on HI Science” conference, 2016

**Volunteering (translation/editing):** Africa-Asia Destitute Relief Foundation (ADRF), 2015

**BK21 Plus Assistant (department assistant):** Yonsei University, 2014

**Public outreach:** Yonsei astronomy public outreach activities (“Byul-a-rum”), 2008 – 2009

**Volunteering (teaching):** Chungam community child center, 2007 – 2008

## PROGRAMMING SKILLS

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**Languages:** Python, HTML, Fortran, LaTeX, IDL (basic), C (basic), Matlab (basic)

**Astronomical data processing tools:** CASA, MIRIAD, AIPS, Karma, GIPSY, SoFiA, IRAF, DisPerSE, Fv

## COLLABORATIONS/MEMBERSHIPS

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**ASKAP-FLASH** (First Large Absorption Survey in HI), **VIVA** (VLA Imaging of Virgo in Atomic gas), **BUDHIES** (Blind Ultra Deep HI Environmental Survey), **VERTICO** (Virgo Environment Traced In CO), **ASKAP spectral line WG** (ASKAP spectral line and data validation working group), **SKA-KOREA WG** (SKA-KOREA Science Working Group - HI science), **ASTRO 3D** (The ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions), **IAU** (International Astronomical Union Junior Member), **ASA** (Astronomical Society of Australia), **KAS** (Korean Astronomy Society)

Link to My ADS Library - <https://ui.adsabs.harvard.edu/public-libraries/5yMcyHDUTbuXMFdYYIep-g>

### Refereed Journals (12):

- 1) “Ram pressure stripping and ISM disc truncation: prediction versus observation” – Seona Lee, Yun-Kyeong Sheen, Hyein Yoon, Yara L. Jaffé, Aeree Chung, MNRAS, 517, 2912, 2022
- 2) “FLASH pilot survey: detections of associated 21 cm H I absorption in GAMA galaxies at  $0.42 < z < 1.00$ ” – Renzhi Su, Elaine M. Sadler, James R. Allison, Elizabeth K. Mahony, Vanessa A. Moss, Matthew T. Whiting, Hyein Yoon, [...], MNRAS, 516, 2947, 2022
- 3) Observations of cold extragalactic gas clouds at  $z = 0.45$  towards PKS 1610-771 – Simon Weng; Elaine M. Sadler, Caroline Foster, Céline Péroux, Elizabeth K. Mahony, James R. Allison, Vanessa A. Moss, Renzhi Su, Matthew T. Whiting, Hyein Yoon, MNRAS, 512, 3638, 2022
- 4) The First Large Absorption Survey in H I (FLASH): I. Science goals and survey design – James R. Allison, E. M. Sadler, A. D. Amaral, [...], Hyein Yoon, [...], PASA, 39, 10, 2022
- 5) H I absorption at  $z \sim 0.7$  against the lobe of the powerful radio galaxy PKS 0409–75 – Elizabeth K. Mahony, James R. Allison, Elaine M. Sadler, [...], Hyein Yoon, [...], MNRAS, 509, 1690, 2022
- 6) Discovery of a Double Radio Relic in ZwCl1447.2+2619: A Rare Testbed for Shock-acceleration Models with a Peculiar Surface-brightness Ratio – Wonki Lee, James M. Jee, Kyle Finner, Kim HyeonGhan, Ruta Kale, Hyein Yoon, William Forman, Ralph Kraft, Christine Jones, Aeree Chung, ApJ, 924, 18, 2022
- 7) VERTICO: The Virgo Environment Traced in CO Survey – Toby Brown, Christine D. Wilson, Nikki Zabel, [...], Hyein Yoon, ApJS, 257, 21, 2021
- 8) Star Formation Activity of Galaxies Undergoing Ram Pressure Stripping in the Virgo Cluster – Jae Yeon Mun, Ho Seong Hwang, Myung Gyoong Lee, Aeree Chung, Hyein Yoon, Jong Chul Lee, JKAS, 54, 17, 2021
- 9) “A History of H I Stripping in Virgo: a Phase-Space View of VIVA Galaxies” – Hyein Yoon, Aeree Chung, Rory Smith, Yara L. Jaffé, ApJ, 838, 81, 2017
- 10) “Large-scale Filamentary Structures around the Virgo Cluster Revisited” – Suk Kim, Soo-Chang Rey, Martin Bureau, Hyein Yoon, Aeree Chung, Helmut Jerjen, Thorsten Lisker, Hyunjin Jeong, Eon-Chang Sung, Youngdae Lee, ApJ, 833, 207, 2016
- 11) “BUDHIES – III: the Fate of H I and the Quenching of Galaxies in Evolving Environments” – Yara L. Jaffé, M. A. W. Verheijen, C. P. Haines, Hyein Yoon, [...], MNRAS, 461, 1202, 2016
- 12) “Early Science with the Large Millimeter Telescope: COOL BUDHIES I – a Pilot Study of Molecular and Atomic Gas at  $z \sim 0.2$ ” – Ryan Cybulski, M. S. Yun, N. Erickson, Victor De la Luz, [...], Hyein Yoon, [...], MNRAS, 459, 3287, 2016

### Refereed Proceedings (2):

- 1) “The gaseous natal environments of GPS and CSS sources with ASKAP–FLASH” – James R. Allison, Elaine M. Sadler, Elizabeth K. Mahony, Vanessa A. Moss, Hyein Yoon, AN, 342, 1062, 2021
- 2) “Pre-Processing of Galaxies in the Filaments around the Virgo Cluster” – Hyein Yoon, Aeree Chung, Chandreyee Sengupta, O. Ivy Wong, Martin Bureau, Soo-Chang Rey, Jacqueline van Gorkom, PKAS, 30, 495, 2015