

DEOKKEUN AN 안덕근

CURRICULUM VITAE

EWHA WOMANS UNIVERSITY
DEPARTMENT OF SCIENCE EDUCATION
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EMPLOYMENT:

- Professor in Astronomy, DEPARTMENT OF SCIENCE EDUCATION, EWHA WOMANS UNIVERSITY, *March 2022 – Present*
- Assistant/Associate Professor, DEPARTMENT OF SCIENCE EDUCATION, EWHA WOMANS UNIVERSITY, *March 2010 – February 2022*
- DEPARTMENT CHAIR, DEPARTMENT OF SCIENCE EDUCATION, EWHA WOMANS UNIVERSITY, *August 2018 – July 2020*
- Postdoctoral Scholar, CALIFORNIA INSTITUTE OF TECHNOLOGY, INFRARED PROCESSING AND ANALYSIS CENTER (IPAC), *September 2008 – February 2010*
- Presidential Graduate Fellow, DEPARTMENT OF ASTRONOMY, OHIO STATE UNIVERSITY, *January 2008 – August 2008*
- Graduate Research/Teaching Assistant, DEPARTMENT OF ASTRONOMY, OHIO STATE UNIVERSITY, *July 2002 – December 2007*
- REPUBLIC OF KOREA AIR FORCE, discharged as a 1st Lieutenant, *March 1999 – July 2002*

EDUCATION:

- **Ph.D.** in Astronomy, DEPARTMENT OF ASTRONOMY, THE OHIO STATE UNIVERSITY, *August 2008*
Title: Improving the Local Distance Scale from Empirically Calibrated Stellar Isochrones
Supervisor: Prof. Donald M. Terndrup
- B.A. in Astronomy, YONSEI UNIVERSITY, Seoul, Korea, *February 1999*

AWARDS AND FELLOWSHIPS:

- Excellence for Teaching Award, Ewha Womans University, *2021*
- Prize for Academic Excellence, Ewha Womans University, *2013 & 2014*
- Young SDSS Astronomer Travel Assistance Award, Astrophysical Research Consortium, *2008*
- Presidential Fellowship, The Ohio State University, *2008*
- Allan Markowitz Graduate Award for Excellence in Observational Astronomy, The Ohio State University, *2007*
- University Scholarship, Yonsei University, Seoul, Korea, *1997 & 1998*

CURRENT RESEARCH TOPICS:

- Formation and evolution of the Galactic halo
- Photometric metallicity mapping of the Milky Way Galaxy
- Observational constraints on theoretical stellar models
- Star formation in the Central Molecular Zone at the Galactic Center

SUPERVISION OF GRADUATE STUDENTS:

- **Nayoung Kim**, Department of Science Education, Ewha Womans University, *since 2023*
- **Yewon Kang**, Department of Science Education, Ewha Womans University, *since 2022*
- **Yeji Kim**, Department of Science Education, Ewha Womans University, *since 2022*
- **Dayoung Pyo**, Department of Science Education, Ewha Womans University, *since 2021*
- **Jiwon Han**, Department of Science Education, Ewha Womans University, *since 2020*
- **Dajeong Jang**, M.S. 2020, "Near Infrared Spectroscopy of H₂O and CH₃OH Ice in the Central Molecular Zone"
- **Jiehye Hong**, M.S. 2019, "Near Infrared Spectroscopic Observations of Candidate Planetary Nebulae toward the Galactic Center"
- **Jaemin Jung**, M.S. 2017, "Medium Resolution Spectroscopy of Red Giant Branch Stars in Omega Centauri"
- **Yeseul Lim**, M.S. 2017, "Calibration of stellar isochrones for G- and K-type dwarfs in the solar neighborhood based on high-resolution spectra and distance to NGC 1866"
- **Jiyoun Lee**, M.S. 2016, "Mid-Infrared Spectroscopic Properties of Polycyclic Aromatic Hydrocarbons in the Central Molecular Zone"
- **Bokyoung Kim**, M.S. 2015, "Spectroscopic Survey of G and K Type Dwarfs in the Hipparcos Catalog"
- **Hyein Yu**, M.S. 2014, "Galactic Globular Clusters in the Sloan Digital Sky Survey: Fiducial Sequences for Horizontal Branch Stars"

REFEREED JOURNAL ARTICLES (MOST RECENT FIRST):

1. **Deciphering the Milky Way's Star Formation at Cosmic Noon with High Proper-Motion Stars: A Precursor to the Merger-Driven Starburst,**
An, D., Lee, Y. S., Hirai, Y., Beers, T. C.,
submitted to *Astronomy & Astrophysics* (2025)
2. **A Blueprint for the Milky Way's Stellar Populations. V. 3D Local Dust Extinction,**
An, D., Beers, T. C., Chiti, A.,
Astrophysical Journal Supplement Series, 272, 20 (2024)
3. **A Blueprint for the Milky Way's Stellar Populations. IV. A String of Pearls--the Galactic Starburst Sequence,**
An, D., Beers, T. C., Lee, Y. -S., Masseron, T.,
Astrophysical Journal, 952, 66 (2023)
4. **Chemodynamical Analysis of Metal-rich High-eccentricity Stars in the Milky Way's Disk,**
Lee, A., Lee, Y. -S., Kim, Y. -K., Beers, T. C., An, D.,
Astrophysical Journal, 945, 56 (2023)
5. **Massive Young Stellar Objects in the Galactic Center. I. Seeing Through the Ice-rich Envelopes,**
Jang, D., An, D., Sellgren, K., Ramirez, S. V., Boogert, A. C. A., Schultheis, M.,
Astrophysical Journal, 930, 16 (2022)
6. **SEGUE-2, Old Milky Way Stars Near and Far,**
Rockosi, C. M., et al. (including An, D.),
Astrophysical Journal Supplement Series, 259, 60 (2022)
7. **A Blueprint for the Milky Way's Stellar Populations. III: Spatial Distributions and Population Fractions of Local Halo Stars,**
An, D., Beers, T. C.,
Astrophysical Journal, 918, 74 (2021)
8. **Hunting for Planetary Nebulae toward the Galactic Center,**
Hong, J., Simpson, J. P., An, D., Cotera, A. S., Ramirez, S. V.,
Astronomical Journal, 162, 93 (2021)
9. **The Photometric Metallicity and Carbon Distributions of the Milky Way's Halo and Solar Neighborhood from S-PLUS Observations of SDSS Stripe 82,**
Whitten, D. D., et al. (including An, D.),
Astrophysical Journal, 912, 147 (2021)
10. **A Blueprint for the Milky Way's Stellar Populations. II: Improved Isochrone Calibration in the SDSS and Pan-STARRS Photometry Systems,**
An, D., Beers, T. C.,
Astrophysical Journal, 907, 101 (2021)
11. **A Blueprint for the Milky Way's Stellar Populations: The Power of Large Photometric and Astrometric Surveys,**
An, D., Beers, T. C.,
Astrophysical Journal, 897, 39 (2020)
12. **Radial Dependence of the Proto-globular Cluster Contribution to the Milky Way Formation,**
Chung, C., Pasquato, M., Lee, S.-Y., di Carlo, U. N., An, D., Yoon, S.-J., Lee, Y.-W.,
Astrophysical Journal Letters, 883, L31 (2019)
13. **Comparison of the Asteroseismic Mass Scale of Red Clump Giants with Photometric Mass Estimates,**

- An, D., Pinsonneault, M. H., Terndrup, D. M., Chung, C.,
Astrophysical Journal, 879, 81 (2019)
- 14. Asymmetric Mean Metallicity Distribution of the Milky Way's Disk,**
An, D.,
Astrophysical Journal Letters, 878, 31 (2019)
- 15. The Second APOKASC Catalog: The Empirical Approach,**
Pinsonneault, M. H., et al. (including An, D.),
Astrophysical Journal Supplement Series, 239, 32 (2018)
- 16. Medium-Resolution Spectroscopy of Red Giant Branch Stars in Omega Centauri,**
An, D., Lee, Y. S., Jung, J., Rey, S., Rhee, J., Lee, J., Lee, Y. -W., Joe, Y.,
Astronomical Journal, 154, 150 (2017)
- 17. Abundant Methanol Ice toward a Massive Young Stellar Object,**
An, D., Sellgren, K., Boogert, A. C. A., Ramirez, S., Pyo, T. -S.,
Astrophysical Journal Letters, 843, 36 (2017)
- 18. Spectroscopic Survey of G and K Dwarfs in the Hipparcos Catalog. I. Comparison between the Hipparcos and Photometric Parallaxes,**
Kim, B., An, D., Stauffer, J. R., Lee, Y. S., Terndrup, D. M., Johnson, J. A.,
Astrophysical Journal Supplement Series, 222, 19 (2016)
- 19. Globular and Open Clusters Observed by SDSS/SEGUE: The Giant Stars,**
Morrison, H. L., Ma, Z., Clem, J. L., An, D., Connor, T., Schechtman-Rook, A., Casagrande, L., Rockosi, C., Yanny, B., Harding, P., Beers, T. C., Johnson, J. A., Schneider, D. P.,
Astronomical Journal, 151, 7 (2016)
- 20. The Fractions of Inner- and Outer-halo Stars in the Local Volume,**
An, D., Beers, T. C., Santucci, R. M., Carollo, D., Placco, V. M., Lee, Y. S., Rossi, S.,
Astrophysical Journal Letters, 813, 28 (2015)
- 21. The Distances to Open Clusters from Main-sequence Fitting. V. Extension of Color Calibration and Test Using Cool and Metal-rich Stars in NGC 6791,**
An, D., Terndrup, D. M., Pinsonneault, M. H., Lee, J. -W.,
Astrophysical Journal, 811, 46 (2015)
- 22. The APOKASC Catalog: An Asteroseismic and Spectroscopic Joint Survey of Targets in the Kepler Fields,**
Pinsonneault, M. H., et al. (including An, D.),
Astrophysical Journal Supplement Series, 215, 19 (2014)
- 23. The Galactic Center: Not an Active Galactic Nuclei,**
An, D., Ramirez, S. V., Sellgren, K.,
Astrophysical Journal Supplement Series, 206, 20 (2013)
- 24. The Stellar Metallicity Distribution Function of the Galactic Halo from SDSS Photometry,**
An, D., Beers, T. C., Johnson, J. A., Pinsonneault, M. H., et al.,
Astrophysical Journal, 763, 65 (2013)
- 25. Signatures of Minor Mergers in the Milky Way Disc I: The SEGUE G-Dwarf Sample,**
Gomez, F. A., Minchev, I., O'Shea, B. W., Lee, Y. S., Beers, T. C., An, D., Bullock, J. S., Purcell, C. W., Villalobos, A.
Monthly Notices of the Royal Astronomical Society, 423, 3727 (2012)
- 26. A Revised Effective Temperature Scale for the Kepler Input Catalog,**
Pinsonneault, M. H., An, D., Molenda-Zakowicz, J., Chaplin, W. J., Metcalfe, T. S., Bruntt, H.
Astrophysical Journal Supplement, 199, 30 (2012)

27. **The Case for the Dual Halo of the Milky Way,**
Beers, T. C., Carollo, D., Ivezic, Z., An, D., Chiba, M., Norris, J. E., Freeman, K. C., Lee, Y. S., Munn, J. A., Fiorentin, P. R., Sivarani, T., Wilhelm, R., Yanny, B., York, D. G.,
Astrophysical Journal, 746, 34 (2012)
28. **Formation and Evolution of the Disk System of the Milky Way: $[\alpha/\text{Fe}]$ Ratios and Kinematics of the SEGUE G-Dwarf Sample,**
Lee, Y. S., Beers, T. C., An, D., Ivezic, Z., Just, A., Rockosi, C. M., Morrison, H. L., Johnson, J. A., Schonrich, R., Bird, J., Yanny, B., Harding, P.,
Astrophysical Journal, 738, 187 (2011).
29. **Massive Young Stellar Objects in the Galactic Center. I. Spectroscopic Identification from *Spitzer* Infrared Spectrograph Observations,**
An, D., Ramirez, S. V., Sellgren, K., Arendt, R. G., Boogert, A. C. A., Robitaille, T. P., Schultheis, M., Cotera, A. S., Smith, H. A., Stolovy, S. R.,
Astrophysical Journal, 736, 133 (2011).
30. **Predicting the Detectability of Oscillations in Solar-type Stars Observed by Kepler,**
Chaplin, W. J., et al. (including An, D.),
Astrophysical Journal, 732, 54 (2011)
31. **The Eighth Data Release of the Sloan Digital Sky Survey: First Data from SDSS-III,**
Hiroaki, A., and for the Sloan Digital Sky Survey (including An, D.),
Astrophysical Journal Supplement, 193, 29 (2011)
32. **The SEGUE Stellar Parameter Pipeline. V. Estimation of Alpha-Element Abundance Ratios from Low-Resolution SDSS/SEGUE Stellar Spectra,**
Lee, Y. S., Beers, T. C., Allende Prieto, C., Lai, D. K., Rockosi, C. M., Morrison, H. L., Johnson, J. A., An, D., Sivarani, T., Yanny, B.,
Astronomical Journal, 141, 90 (2011)
33. **The SEGUE Stellar Parameter Pipeline. IV. Validation with an Extended Sample of Galactic Globular and Open Clusters,**
Smolinski, J. P., Lee, Y. S., Beers, T. C., An, D., Bickerton, S., J., Johnson, J. A., Loomis, C. P., Rockosi, C. M., Sivarani, T., Yanny, B.,
Astronomical Journal, 141, 89 (2011)
34. **A Photometric Metallicity Estimate of the Virgo Stellar Overdensity,**
An, D., Johnson, J. A., Beers, T. C., Pinsonneault, M. H., Terndrup, D. M., Delahaye, F., Lee, Y. S., Masseron, T., Yanny, B.,
Astrophysical Journal Letters, 707, 64 (2009)
35. **First Spectroscopic Identification of Massive Young Stellar Objects in the Galactic Center,**
An, D., Ramirez, S. V., Sellgren, K., Arendt, R. G., Boogert, A. C. A., Schultheis, M., Stolovy, S. R., Cotera, A. S., Robitaille, T. P., Smith, H. A.,
Astrophysical Journal Letters, 702, 128 (2009)
36. **Galactic Globular and Open Clusters in the Sloan Digital Sky Survey. II. Test of Theoretical Stellar Isochrones,**
An, D., Pinsonneault, M. H., Masseron, T., Delahaye, F., Johnson, J. A., Terndrup, D. M., Beers, T. C., Ivans, I. I., Ivezic, Z.,
Astrophysical Journal, 700, 523 (2009)
37. **The Seventh Release of Sloan Digital Sky Survey,**
Abazajian, K., and for the Sloan Digital Sky Survey (including An, D.),
Astrophysical Journal Supplement, 182, 543 (2009)

38. **SEGUE: A Spectroscopic Survey of 240,000 Stars with $g=14-20$,**
Yanny, B., Rockosi, C., et al. (SEGUE collaboration including An, D.),
Astronomical Journal, 137, 4377 (2009)
39. **Galactic Globular and Open Clusters in the Sloan Digital Sky Survey. I. Crowded Field Photometry and Cluster Fiducial Sequences in *ugriz*,**
An, D., Johnson, J. A., Clem, J. L., Yanny, B., Rockosi, C. M., Morrison, H. L., Harding, P., Gunn, J. E., Allende Prieto, C., Beers, T. C., Cudworth, K. M., Ivans, I. I., Ivezić, Z., Lee, Y. S., Lupton, R. H., Bizyaev, D., Brewington, H., Malanushenko, E., Malanushenko, V., Oravetz, D., Pan, K., Simmons, A., Snedden, S., Watters, S., York, D. G.,
Astrophysical Journal Supplement, 179, 326 (2008)
40. **The SEGUE Stellar Parameter Pipeline. II. Validation with Galactic Globular and Open Clusters,**
Lee, Y. S., Beers, T. C., Sivarani, T., Johnson, J. A., An, D., Wilhelm, R., Allende Prieto, C., Fiorentin, P. R., Bailer-Jones, C. A., Norris, J. E., Yanny, B., Rockosi, C., Newberg, H. J., Cudworth, K. M., Pan, K.,
Astronomical Journal, 136, 2050 (2008)
41. **The Distances to Open Clusters from Main-Sequence Fitting. IV. Galactic Cepheids, the LMC, and the Local Distance Scale,**
An, D., Terndrup, D. M., Pinsonneault, M. H.,
Astrophysical Journal, 671, 1640 (2007)
42. **Resolving the Pulsations of Subdwarf B stars: HS 0039+4302, HS 0444+0458 and an Examination of the Group Properties of Resolved Pulsators,**
Reed, M. D., Terndrup, D. M., Zhou, A.-Y., Unterborn, C. T., An, D., Eggen, J. R.,
Monthly Notices of the Royal Astronomical Society, 378, 1049 (2007)
43. **Follow-up Observations of Pulsating Subdwarf B Stars: Multisite Campaigns on PG1618+563B and PG0048+091,**
Reed, M. D., O'Toole, S. J., Terndrup, D. M., Eggen, J. R., Zhou, A.-Y., An, D., Chen, C.-W., Chen, W. P., Lin, H.-C., Akan, C., Cakirli, O., Worters, H., Kilkenny, D., Siwak, M., Zola, S., Kim, S.-L., Gelven, G. A., Harms, S. L., Wolf, G. W.,
Astrophysical Journal, 664, 518 (2007)
44. **The Distances to Open Clusters from Main-Sequence Fitting. III. Improved Accuracy with Empirically Calibrated Isochrones,**
An, D., Terndrup, D. M., Pinsonneault, M. H., Paulson, D. B., Hanson, R. B., Stauffer, J. R.,
Astrophysical Journal, 655, 233-260 (2007)
45. **Anomalous Optical Gamma-Ray Burst Afterglows Are Common: Two $z \sim 4$ Bursts, GRB 060206 and GRB 060210,**
Stanek, K. Z., Dai, X., Prieto, J. L., An, D., Garnavich, P. M., Calkins, M. L., Serven, J., Worthey, G., Hao, H., Dobrzycki, A., Howk, C., Matheson, T.,
Astrophysical Journal Letters, 654, L21-24 (2007)
46. **Discovery of a New Multiperiodic δ Scuti Variable Star,**
Zhou, A.-Y., An, D., Eggen, J. R., Reed, M. D., Terndrup, D. M., Harms, S. L.,
Astrophysics and Space Science, 305, 29-36 (2006)
47. **Resolving the pulsations of subdwarf B Stars: PG 0154+182, HS 1824+5745 and HS 2151+0857,**
Reed, M. D., Eggen, J. R., Zhou, A.-Y., Terndrup, D. M., Harms, S. L., An, D., Hashier, M. A.,
Monthly Notices of the Royal Astronomical Society, 369, 1529-1536 (2006)
48. **Microlens OGLE-2005-BLG-169 Implies That Cool Neptune-like Planets Are Common,**
Gould, A., Udalski, A., An, D., Bennett, D. P., Zhou, A.-Y., Dong, S., Rattenbury, N. J., Gaudi, B. S., Yock, P. C. M., Bond, I. A., Christie, G. W., Horne, K., Anderson, J., Stanek, K. Z., DePoy, D. L.,

- Han, C., McCormick, J., Park, B.-G., Pogge, R. W., Poindexter, S. D., Soszyński, I., Szymański, M. K., Kubiak, M., Pietrzyński, G., Szewczyk, O., Wyrzykowski, Ł., Ulaczyk, K., Paczyński, B., Bramich, D. M., Snodgrass, C., Steele, I. A., Burgdorf, M. J., Bode, M. F., Botzler, C. S., Mao, S., Swaving, S. C.,
Astrophysical Journal Letters, 644, L37-40 (2006)
49. **GRB 060218/SN 2006aj: A Gamma-Ray Burst and Prompt Supernova at $z = 0.0335$,**
Mirabal, N., Halpern, J. P., An, D., Thorstensen, J. R., Terndrup, D. M.,
Astrophysical Journal Letters, 643, L99-102 (2006)
50. **Resolving the Pulsations of the Subdwarf B Star KPD 2109 + 4401,**
Zhou, A.-Y., Reed, M. D., Harms, S., Terndrup, D. M., An, D., Zola, S., Gazeas, K. D.,
Niarchos, P. G., Ogloza, W., Baran, A., Wolf, G. W.,
Monthly Notices of the Royal Astronomical Society, 367, 179-185 (2006)
51. **Follow-Up Observations of Known EC 14026-type Pulsators,**
Wolf, G. W., Reed, M. D., Zhou, A.-Y., Terndrup, D. M., Harms, S. L., An, D., Chen, C.-W., Lin, H.-
C., Zola, S., Baran, A., Ogloza, W., Siwak, M., Gazeas, K. D., Niarchos, P. G., Kilkenny, D.,
Baltic Astronomy, 15, 279-282 (2006)
52. **Survey for EHB Stars in the Galactic Bulge,**
Terndrup, D. M., An, D., Hansen A., Peterson, R. C., Walker, A. R., Sadler, E. M.,
Astrophysics and Space Science, 291, 247-252 (2004)

OTHER PUBLICATIONS:

1. **The Essential Cosmic Perspective (우주의 본질),**
by Jeffrey Bennett , Megan Donahue, Nicholas Schneider, Mark Voit,
translated by Kim, Y., and 18 authors (including An, D.), Sigma Press, 2015.
2. **Earth (지구시스템과학 II),**
by Graham R. Thompson and Jonathan Turk,
translated by Yun, I. H., Park, K. A., Kim, C. H., Kim, S. S., An, D., An, K. J., Books Hill, 2012.