

Sujeong Lee

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RESEARCH FOCUS

Weak gravitational lensing, large scale structure, modified gravity, dark energy, observational cosmology

EDUCATION

Ph.D., Physics 2019
The Ohio State University, Columbus, USA
Advisor : Klaus Honscheid
Title of thesis: Tools for Cosmology - Combining Data from Photometric and Spectroscopic Surveys

M.S., Physics 2013
Kyung Hee University, Seoul, Korea
Advisor: Soonkeon Nam
Title of thesis: Inflation with Radion Field in κ -deformed Theory

B.S., Physics 2011
Kyung Hee University, Seoul, Korea

WORK EXPERIENCE

2019 - 2022: Postdoctoral Researcher
Duke University, Durham, USA
Supervisor: Professor Michael Troxel

TALKS & SEMINARS

SELECTED INVITED TALKS

11/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 at the Newcastle University, UK
10/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 at the Perimeter Institute for Theoretical Physics, Canada
06/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 at the NASA JPL Dark Sector Meeting, NASA JPL, USA
06/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 at GECO group @ Laboratoire d'Astrophysique de Marseille, France
06/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 in the CCAPP seminar, Ohio State University, USA
10/2011, 「 *Fifth Dimension* 」 in the Future Student Forum of 2011 Peace BAR Festival in Celebration of the 30th Anniversary of the UN International Day of Peace at Kyung Hee University

SELECTED CONFERENCE AND MEETING TALKS

08/2021, 「 *Combining Spectroscopic and Photometric Surveys using the DMASS galaxy sample* 」 in the Cosmo'21 online conference
01/2019, 「 *DES Y1 Results: Extended Cosmological Models from Galaxy Clustering and* 」

Weak Lensing, in Special Session "New Results from the Dark Energy Survey" at the 233rd meeting of the American Astronomical Society, Seattle, USA
04/2018, "Producing an SDSS-BOSS CMASS sample with DES imaging to test gravity", in the APS meeting, Columbus, USA
06/2017, "Constraining modified gravity with DMASS galaxies", in the Dark Energy Survey collaboration meeting, U Chicago, USA
11/2012, "Inflation with Radion Field in the κ -deformed theory", in 2012 Autumn Korean Physical Society (KPS) Conference

PUBLICATIONS FIRST AUTHOR PUBLICATIONS

1. **Lee S.**, Ross A. J., Troxel M. A., et al., "Combining the LSST and DESI surveys using the LSST-DESI galaxy samples," *in prep.*, 2022
Led analysis and writing
2. **Lee S.**, Huff E. M., Choi A., Elvin-Poole J., Hirata C., Honscheid K., MacCrann N., et al., "Probing gravity with the DES-CMASS sample and BOSS spectroscopy", 2021, MNRAS.tmp. doi:10.1093/mnras/stab3129
Led analysis and writing
3. **Lee S.**, Troxel M. A., Choi A., Elvin-Poole J., Hirata C., Honscheid K., Huff E. M., et al., "Galaxy-galaxy lensing with the DES-CMASS catalogue: measurement and constraints on the galaxy-matter cross-correlation", 2021, MNRAS.tmp. doi:10.1093/mnras/stab3028
Led analysis and writing
4. **Lee S.**, Huff E. M., Ross A. J., Choi A., Hirata C., Honscheid K., MacCrann N., et al., "Producing a BOSS-CMASS sample with DES imaging", 2019, MNRAS, 489, 2887. doi:10.1093/mnras/stz2288
Led analysis and writing

CONTRIBUTED PUBLICATIONS

5. (Alphabetical) DES Collaboration, "Dark Energy Survey Year 3 Results: Constraints on extensions to Λ CDM with weak lensing and galaxy clustering", 2022, arXiv:2207.05766
Created supported infrastructure for analysis, validated modified gravity modeling approach, ran MCMC chains, contributed to writing and plots
6. Chen A., Huterer D., **Lee S.**, Ferté A., Weaverdyck N., Alves O., Leonard C. D., et al., "Constraints on dark matter to dark radiation conversion in the late universe with DES-Y1 and external data", 2021, PhRvD, 103, 123528. doi:10.1103/PhysRevD.103.123528
Ran MCMC chains, credited for contributions to broader DES Y1 analysis
7. Cawthon R., Elvin-Poole J., Porredon A., Croce M., Giannini G., Gatti M., Ross A. J., Rykoff, E. S., Carnero Rosell, A., DeRose, J., **Lee, S.**, Rodriguez-Monroy, M., Amon, A., et al., "Dark Energy Survey Year 3 Results: Calibration of Lens Sample Redshift Distributions using Clustering Redshifts with BOSS/eBOSS", 2020, arXiv:2012.12826
Created simulated data sets for validation
8. Porredon A., Croce M., Elvin-Poole J., Cawthon R., Giannini G., De Vicente J., Carnero Rosell A., ..., Jarvis, M., **Lee, S.**, Lemos, P., ..., et al., "Dark Energy Survey Year 3 results: Cosmological constraints from galaxy clustering and galaxy-galaxy lensing using the MagLim lens sample", 2021, arXiv:2105.13546
DES internal reviewer

9. Muir J., Baxter E., Miranda V., Doux C., Ferté A., Leonard C. D., Huterer D., Jain, B., Lemos, P., Raveri, M., Nadathur, S., Campos, A., Chen, A., Dodelson, S., Elvin-Poole, J., **Lee, S.**, Secco, L. F., Troxel, M. A., Weaverdyck, N., Zuntz, J, et al., "[DES Y1 results: Splitting growth and geometry to test LCDM](#)", 2021, PhRvD, 103, 023528.

doi:10.1103/PhysRevD.103.023528

Credited for contributions to broader DES Y1 analysis

10. (Alphabetical) DES Collaboration, Abbott T. M. C., Abdalla F. B., Alarcon A., Aleksić J., Allam S., Allen S., Amara A., ..., Lahav, O., **Lee, S.**, Lemos, P., ..., et al., "[Dark Energy Survey Year 1 Results: Constraints on Extended Cosmological Models from Galaxy Clustering and Weak Lensing](#)", 2018, PhRvD, 98, 043526. doi:10.1103/PhysRevD.98.043526

Created supported infrastructure for analysis, validated phenomenological modified gravity approach modeling approach, ran MCMC chains, contributed to writing and plots

CONFERENCE ABSTRACTS

11. **Lee, S.** (2019, January). "[Dark Energy Survey Year 1 Results: Constraints on Extended Cosmological Models from Galaxy Clustering and Weak Lensing](#)". In American Astronomical Society Meeting Abstracts 233 (Vol. 233, pp. 224-03).

12. **Lee, S.**, Huff, E., Ross, A., Troxel, M., MacCrann, N., Choi, A., ... Honscheid, K. (2018). "[Producing an SDSS-BOSS CMASS sample with imaging from the Dark Energy Survey to test gravity](#)". In APS April Meeting Abstracts (Vol. 2018, pp. J15-008).

DATA PRODUCTS

13. DES Year 1 DMASS catalog (<https://des.ncsa.illinois.edu/releases/other/y1-dmass>)

TEACHING EXPERIENCES

2014 – 2015, Teaching Assistant, Physics 1251 (General Physics) in the Ohio State University, USA

2011 – 2012, Teaching Assistant, Special Topics on Physics in Kyung Hee University, Korea

2011 – 2012, Teaching Assistant, Laboratory in General Physics in Kyung Hee University, Korea

SKILLS

Languages : Korean (native), English (fluent), Japanese (basic)

Computer Languages : Python, C, Fortran

Software : Markov Chain Monte Carlo Simulation, CAMB, MGCAMB, CLASS, Cosmological analysis pipelines (COSMOSIS, COSMOLIKE)

REFERENCES

Dr. Michael Troxel

Associate Professor
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Duke University
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Dr. Eric Huff

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Dr. Klaus Honscheid

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