

Seunghwan Lim

CONTACT INFORMATION	Canadian Institute of Theoretical Astrophysics University of Toronto 60 St. George Street, Toronto, ON, Canada M5S 3H8	http://www.cita.utoronto.ca/~shlim ✉ shlim@cita.utoronto.ca shlim1206@gmail.com
EMPLOYMENT	CITA Postdoctoral Fellow, University of Toronto CITA National Fellow, University of British Columbia	2021– 2019–2021
EDUCATION	University of Massachusetts, Amherst, MA, USA Ph.D., Astronomy, 2019 (Advisor: Houjun Mo) Thesis: <i>Galaxies and gas in dark matter halos and the cosmic web</i> Seoul National University, Korea M.S., Astronomy, 2013 (Advisor: Joungun Lee) Thesis: <i>A new analytic model for the cluster and supercluster mass functions</i> POSTECH (Pohang University of Science and Technology), Korea B.S., Physics, 2011 (Advisor: Jaesam Kim) Thesis: <i>Use of type Ia supernovae for cosmology and uncertainty in its modelling</i>	
HONORS AND AWARDS	Canadian Institute for Theoretical Astrophysics Fellowship, CITA Kavli Astrophysics Postdoctoral Fellowship, Kavli IPMU (declined) Rodger Doxsey Prize, AAS FAMOUS Travel Grant, AAS Mary Dailey Irvine Travel Grant, UMass Amherst Astronomy Graduate Program Fellowship, UMass Amherst Mary Dailey Irvine Travel Grant, UMass Amherst Astronomy Graduate Program Fellowship, UMass Amherst BK21 Fellowship, Government of Korea POSTECH Full Scholarship for Superior Students, POSTECH	2019–2023 2019 2019 2019 2019 2018 2018 2015 2011–2012 2003–2010
PUBLICATIONS (1ST AUTHOR)	12. Lim S.H. , Hill R., Scott D., van Waerbeke L., Cuillandre J.-C., Carlberg R.G., Chisari N.E., Dvornik A., Erben T., Gwyn S., McConnachie A.W., Miville-Deschênes M.-A., Wright A.H., Duc P.-A., <i>Constraints on Galaxy Formation from the Cosmic-infrared-background – Optical-imaging Cross-correlation Using Herschel and UNIONS</i> , 2022, arXiv e-prints, arXiv:2203.16545 11. Lim S.H. , Barnes D.J., Vogelsberger M., Mo H.J., Nelson D., Pillepich A., Dolag K., Marinacci F., <i>Properties of the Ionized CGM and IGM: Tests for Galaxy Formation Models from the Sunyaev-Zel’dovich Effect</i> , 2021, MNRAS, 504, 5131 10. Lim S.H. , Scott D., Babul A., Barnes D.J., Kay S.T., McCarthy I.G., Rennehan D., Vogelsberger M., <i>Is There Enough Star Formation in Simulated Protoclusters?</i> , 2021, MNRAS, 501, 1803 9. Lim S.H. , Mo H.J., Wang H., Yang X., <i>Detection of Missing Baryons in Galaxy Groups with Kinetic Sunyaev-Zel’dovich Effect</i> , 2020, ApJ, 889, 48 8. Lim S.H. , Mo H.J., Wang H., Yang X., <i>Exploring the Thermal Energy Contents of the Intergalactic Medium with the Sunyaev-Zeldovich Effect</i> , 2018, ApJ, 480, 4017 7. Lim S.H. , Mo H.J., Li R., Liu Y., Ma Y.-Z., Wang H., Yang X., <i>Gas Contents of Galaxy Groups from Thermal Sunyaev-Zel’dovich Effects</i> , 2018, ApJ, 854, 181	

6. **Lim S.H.**, Mo H.J., Lu Y., Wang H., Yang X., *Galaxy Groups in the Low-redshift Universe*, 2017, MNRAS, 470, 2982
5. **Lim S.H.**, Mo H.J., Lan T.-W., Menard B., *Testing Galaxy Formation Models with Galaxy Stellar Mass Functions*, 2017, MNRAS, 464, 3256
4. **Lim S.H.**, Mo H.J., Wang H., Yang X., *An Observational Proxy of Halo Assembly Time and its Correlation with Galaxy Properties*, 2016, MNRAS, 455, 499
3. **Lim S.H.**, Lee J., *The Extended Zel'dovich Mass Functions of Clusters and Isolated Clusters in the Presence of Primordial Non-Gaussianity*, 2014, ApJ, 792, 91
2. **Lim S.H.**, Lee J., *An Analytic Formula for the Supercluster Mass Function*, 2014, ApJ, 783, 39
1. **Lim S.H.**, Lee J., *An Extended Zel'dovich Model for the Halo Mass Function*, 2013, JCAP, 01, 019

PUBLICATIONS
(OTHERS)

10. Lammers C., Hill R., **Lim S.H.**, Scott D., Cañameras R., Dole H., *Candidate High-redshift Protoclusters and Lensed Galaxies in the Planck List of High-z Sources Overlapping with Herschel-SPIRE Imaging*, 2022, MNRAS, 514, 5004
9. Cheng Y., Wang Q.D., **Lim S.H.**, *X-ray Spectroscopy of the Starburst Feedback in 30 Doradus*, 2021, MNRAS, 504, 1627
8. Wu X., Mo H. J., Li C., **Lim S.H.**, *Constraints on Circumgalactic Media from Sunyaev-Zel'dovich Effects and X-Ray Data*, 2020, ApJ, 903, 26
7. Wang E., Wang H., Mo H.J., van den Bosch F.C., **Lim S.H.**, Wang L., Yang X., Chen S., *The Dearth of Differences between Central and Satellite Galaxies. II. Comparison of Observations with L-GALAXIES and EAGLE in Star Formation Quenching*, 2018, ApJ, 864, 51
6. Wang E., Wang H., Mo H.J., **Lim S.H.**, van den Bosch F.C., Kong X., Wang L., Yang X., Chen S., *The Dearth of Difference between Central and Satellite Galaxies. I. Perspectives on Star Formation Quenching and AGN Activities*, 2018, ApJ, 860, 102
5. Yang X., Zhang Y., Wang H., Liu C., Lu T., Li S., Shi F., Jing Y.P., Mo H.J., van den Bosch F.C., Kang X., Cui W., Guo H., Li G., **Lim S.H.**, Lu Y., Luo W., Wei C., Yang L., *ELUCID. V. Lighting Dark Matter Halos with Galaxies*, 2018, ApJ, 860, 30
4. Wei C., Li G., Kang X., Luo Y., Xia Q., Wang P., Yang X., Wang H., Jing Y.P., Mo H.J., Lin W., Wang Y., Li S., Lu Y., **Lim S.H.**, Tweed D., Cui W., *Full-sky Ray-tracing Simulation of Weak Lensing Using ELUCID Simulations: Exploring Galaxy Intrinsic Alignment and Cosmic Shear Correlations*, 2018, ApJ, 853, 25
3. Wang H., Mo H.J., Chen S., Yang Y., Yang X., Wang E., van den Bosch F.C., Jing Y.P., Kang X., Lin W., **Lim S.H.**, Huang S., Lu Y., Li S., Cui W., Zhang Y., Tweed D., Wei C., Li G., Shi F., *ELUCID. IV. Galaxy Quenching and its Relation to Halo Mass, Environment, and Assembly Bias*, 2018, ApJ, 852, 31
2. Guo H., Li C., Zheng Z., Mo H.J., Jing Y.P., Zu Y., **Lim S.H.**, Xu H., *Constraining the H I-Halo Mass Relation from Galaxy Clustering*, 2017, ApJ, 846, 61
1. Lu Y., Yang X., Shi F., Mo H.J., Tweed D., Wang H., Zhang Y., Li S., **Lim S.H.**, Xu H., *Galaxy Groups in the 2MASS Redshift Survey*, 2016, ApJ, 832, 39

RESEARCH
EXPERIENCE

- | | |
|---|-----------|
| Postdoctoral Fellow, CITA, University of Toronto | 2021– |
| Postdoctoral Fellow, University of British Columbia
(w/ Douglas Scott, Ryley Hill, Ludovic van Waerbeke, Gary Hinshaw)
<i>Star formation at high redshift: Protoclusters from simulations</i>
<i>The CIB-optical cross-correlator from the CFIS and SPIRE images</i> | 2019–2021 |

Research Assistant, UMass Amherst (Advisor: Houjun Mo)	2015–2019
<i>Gas contents of the low-z Universe from Sunyaev-Zel'dovich effects</i>	
<i>Understanding the connection between dark mater halos and galaxy formation</i>	
Visiting Scholar, Max Planck Institute for Astrophysics	2018
(Host: Eiichiro Komatsu, w/ Klaus Dolag)	
<i>Test of flux extraction methods of Sunyaev-Zel'dovich effects using simulated maps</i>	
Visiting Scholar, Tsinghua University (Host: Houjun Mo)	2016
<i>Stellar mass functions as constraints for galaxy formation model</i>	
<i>Halo finder and low-redshift group catalogs</i>	
Second-year research project, UMass Amherst (Advisor: Houjun Mo)	2015–2016
<i>Alignment of galaxies and its relation to large-scale structures</i>	
<i>Observational proxy of halo formation time and galaxy properties</i>	
First-year research project, UMass Amherst (Advisor: Daniel Wang)	2013–2015
<i>Feedback from starbursts: 30 Dorado as a case study</i>	
Research Assistant, Seoul National University (Advisor: Jounghun Lee)	2011–2013
<i>Analytic modelling for the cluster and supercluster mass functions</i>	
Undergrad thesis project, POSTECH (Advisor: Jaesam Kim)	2011–2013
<i>Use of type Ia supernovae for cosmology and uncertainty in its modelling</i>	

SELECTED
TALKS

Contributed talk, Galaxies & AGN with the first Euclid data and beyond, Naples, Italy	2022
Lightning talk, 2022 Euclid Consortium Meeting, Oslo, Norway	2022
Seminar Talk, Cosmology Group Meeting, Ohio State University	2021
Seminar Talk, Astronomy Seminar, Purdue University	2021
Lightning talk, 2021 CITA National Jamboree, CITA	2021
Invited Seminar, Departmental Seminar, Kavli IPMU, University of Tokyo	2021
Seminar Talk, CITA Seminar, CITA, University of Toronto	2021
Contributed Talk, Vancouver(SFU/TRIUMF/UBC) Cosmology Meeting	2020
Invited Seminar, Lunch Talk, Kavli IPMU, University of Tokyo	2020
Lightning Talk, Vancouver(SFU/TRIUMF/UBC) Cosmology Meeting	2019
Seminar Talk, Astronomy Colloquium, University of British Columbia	2019
Oral Dissertation Talk, AAS Meeting #233, Seattle, WA, USA	2019
Seminar Talk, IAS/Princeton Cosmology Lunch, Institute for Advanced Study	2018
Seminar Talk, Informal Seminar, New York University	2018
Seminar Talk, Galaxy Coffee, Max Planck Institute for Astronomy	2018
Seminar Talk, Informal Seminar, Heidelberg Institute for Theoretical Studies	2018
Contributed Talk, Intergalactic Interconnections, Marseille	2018
Seminar Talk, Cosmology Seminar, Max Planck Institute for Astrophysics	2018
Seminar Talk, Thursday Lunch Talk, Center for Computational Astrophysics Flatiron	2018
Seminar Talk, Informal Seminar, MIT	2018
Seminar Talk, Galread, Princeton University	2017
Seminar Talk, Galaxies and Cosmology Talk, Harvard-Smithsonian Center for Astrophysics	2017
Seminar Talk, Informal Seminar, Yale University	2016
Seminar Talk, THCA Lunch Talk, Tsinghua University, Beijing, China	2016
Poster, AAS Meeting #221, Long Beach, CA, USA	2013
Contributed Talk, Summer School on Cosmology, SISSA, Trieste, Italy	2012
Contributed Talk, WKYC 2012, KASI, Daejeon, Korea	2012

RESEARCH
MENTORING
AND
SUPERVISION

Caleb Lammers, undergraduate student at University of Toronto,	2021–
Summer research project, co-advising with Prof. Douglas Scott and Ryley Hill	

	Laya Ghodsi, graduate student at University of British Columbia, Graduate research project, co-advising with Prof. Allison Man and Dr. Darko Donevski	2021–
	Joshua Tindall, undergraduate student at University of British Columbia, Summer research project, co-advising with Prof. Douglas Scott and Ryley Hill	2020
	Suying Liu, undergraduate student at University of Hong Kong, Mitacs summer research project, co-advising with Prof. Douglas Scott and Ryley Hill	2020
	Luan Luan, graduate student at UMass Amherst, 1st year research project, co-advising with Prof. Daniel Wang and Prof. Houjun Mo	2018
TEACHING EXPERIENCE	Teaching Assistant, UMass Amherst <i>Astro100</i>	2018–2019
	Teaching Assistant, UMass Amherst <i>Astro100, Astronomy Lab, Computational Physics</i>	2013–2015
	Teaching Assistant, Seoul National University <i>Man & the Universe</i>	2012
ACADEMIC MEMBERSHIP	Canadian Astronomical Society	2020–
	Canada-France Imaging Survey UNIONS collaboration The CIB-optical cross-correlation	2019–
	Euclid Consortium The CIB-optical cross-correlation	2019–
SERVICES	Journal Referee: MNRAS	2019–
	Public Service Worker as Alternative Military Service Duty Seoul Central District Prosecutors' Office, Seoul, Korea	2006–2008
	Student Vice President in Department of Physics, POSTECH, Korea,	2005
TECHNICAL SKILLS	Selected Programming Languages: C/C++, Fortran, IDL, Python	
REFERENCES	Prof. Houjun Mo Department of Astronomy, University of Massachusetts, Amherst, MA, USA +1-413-577-0394 hjmo@astro.umass.edu	
	Prof. Douglas Scott Department of Physics and Astronomy, University of British Columbia, Vancouver, BC, Canada +1-604-822-2802 dscott@phas.ubc.ca	
	Prof. Huiyuan Wang Department of Astronomy, University of Science and Technology of China, Hefei, Anhui, China +86-551-6360-0179 whywang@ustc.edu.cn	
	Prof. Jounghun Lee	

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