

Chihway Chang

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EDUCATION	Physics Department, Stanford University Physics Department, National Taiwan University	Ph. D. 2013 B. S. 2007
ACADEMIC APPOINTMENTS	Clare Boothe Luce Assistant Professor, Department of Astronomy and Astrophysics, University of Chicago KICP Fellow, University of Chicago Postdoctoral Fellow, Institute of Astronomy, ETH Zurich	2018 – 2016 – 2018 2013 – 2016
HONOURS AND RECOGNITIONS	Clare Boothe Luce Assistant Professor Editor's choice in Physical Review Letters 62nd Meeting of Nobel Laureate, Lindau, Germany Presidential Awards, National Taiwan University Jen-Lin Huang Scholarship	2018 2015 2012 2004 – 2007 2005 – 2006
SERVICE AND LEADERSHIP	Snowmass 2021 Topical Group Convener (CF6: Dark Energy and Cosmic Acceleration: Complementarity of Probes and New Facilities) 2020 CMB-S4 Science Organizing Committee LSST DESC Collaboration Council DES Membership Committee DES Management Committee LSST DESC Weak Lensing Working Group Coordinator DES Weak Lensing Mass Mapping Analysis Group Coordinator Reviewer for MNRAS, ApJ, Nature Astronomy, DES/DESC Collaboration Mentor for 15+ high school, undergraduate, and graduate students	2020 – present 2020 2020 – present 2019 – present 2018 – present 2018 – present 2016 – present 2014 – present 2014 – present
COLLABORATIONS	The Dark Energy Survey (DES) The LSST Dark Energy Science Collaboration (DESC) The Large Synoptics Survey Telescope (LSST)	2013 – present 2013 – present 2010 – present
TEACHING	ASTR 406 (UChicago) Gravitational Lensing: <i>Lecturer</i> ASTR 133 (UChicago) Introduction to Astrophysics: <i>Lecturer</i> PHYS 372 (UChicago), Space Physics and Astrophysics: <i>Guest Lecturer</i> Astrophysics I (ETH): <i>Substitute Lecturer</i> Astrowoche (ETH): <i>Teaching Assistant</i> Cosmological Probes (ETH): <i>Teaching Assistant and Substitute Lecturer</i> Physics 21 (Stanford), Mechanics and Heat: <i>Teaching Assistant</i> Physics 23 (Stanford), Electricity and Optics: <i>Teaching Assistant</i> Physics 41 (Stanford), Light and Heat: <i>Teaching Assistant</i>	Fall 2020 Spring 2019, 2020 Fall 2016, 2018 Fall 2015, 2014 Spring 2016, 2015 Spring 2014 Fall 2011 Winter 2007 Fall 2007
OUTREACH	Panel at SLAC public lecture series Career panel in DES, SLAC Co-organizer of workshop “When Technology Transforms Society: Considering the Soci-	2020 2018, 2020

etal and Ethical Impacts of Quantum Computing and AI”	2019
APS Conferences for Undergraduate Women in Physics (CUWiP) Panel	2019
Public talk at the <i>Art of Science</i> series	2018
Volunteer at the Adler Planetarium: <i>Astronomy Conversations</i>	2016 – present
DES outreach program <i>DarkBites: Lead illustrator</i> , 40+ illustrations (https://www.darkenergysurvey.org/education/darkbites/)	2014 – 2015
SLAC tour guide	2010 – 2013

PROPOSALS
AWARDED

<i>Funding:</i> DOE FY2020 HEP Comparative Review, Cosmology with Galaxy and CMB Surveys: Mitigating Systematic Effects Through Combining Datasets, 125K	2020 – 2022
<i>Observing:</i> Magellan 2020 B, 2 nights [PI]	2020 – 2022
<i>Computing:</i> Midway Research II Allocation, 1.3M hours [PI]	2019
<i>Observing:</i> Magellan 2020A, 2 nights [PI]	2019
<i>Funding:</i> University of Chicago Center for Data and Computing (CDAC) Data Science Discovery Grant – When Technology Transforms Society: Considering the Societal and Ethical Impacts of Quantum Computing and AI, 15K [PI]	2019 – 2020
<i>Computing:</i> Midway Research II Allocation, 1M hours [PI]	2018
<i>Funding:</i> Fermilab LDRD – Mapping Dark Matter with the faintest Galaxy, 40K [PI]	2018 – 2019

SELECTED TALKS	Invited Panel for SLAC public talk series, remote	Sep 29, 2020
	Invited KIPAC career panel, remote	Sep 21, 2020
	Invited talk at IPMU conference “Cosmic Acceleration”, Tokyo, Japan	Feb 17, 2020
	Physics Colloquium, Kansas State University, Manhattan, KS	Oct 21, 2019
	Invited talk at conference “Cosmic Controversy”, Chicago, IL	Oct 5, 2019
	Plenary talk at conference “COSMO19”, Aachen, Germany	Sep 2, 2019
	Invited talk at “LSST DESC Dark Matter Workshop”, Chicago, IL	Aug 5, 2019
	Plenary talk at conference APS DPF, Boston, MA	Jul 31, 2019
	Astrophysics Seminar, McGill University, Montreal, Canada	Jul 3, 2019
	Plenary talk at “Quantum Theory and Symmetry-XI”, Montreal, Canada	Jul 2, 2019
	Panelist at workshop ICG25, State College, PA	Jun 24, 2019
	Fermilab Astrophysics Seminar, Baltavia, IL	Jun 10, 2019
	Invited talk at LSST in South America, Sao Paulo, Brazil	Dec 18, 2018
	Kavli Symposium, Oslo, Norway	Sep 1, 2018
	Invited talk at COSPAR, Pasadena, CA, USA	Jul 16, 2018
	Invited talk at APS, Columbus, OH, USA	Apr 17, 2018
	UChicago Astro Seminar, Chicago, IL, USA	Feb 27, 2018
	Rutgers Astro Seminar, New Brunswick, NJ, USA	Feb 19, 2018
	Duke Physics Colloquium, Durham, NC, USA	Feb 14, 2018
	University of Pittsburgh Physics Colloquium, Pittsburgh, PA, USA	Jan 30, 2018
	UC Berkeley Physics Colloquium, Berkeley, CA, USA	Jan 23, 2018
	Cosmology Group Meeting, CCA, NY, USA	Nov 9, 2017
	Cosmology Seminar, Princeton/IAS, NJ, USA	Nov 6, 2017
	Fermilab Astro Seminar, Fermilab, IL, USA	October 23, 2017
	Astro/Cosmology Seminar, CMU, PA, USA	October 13, 2017
	Astrophysics and Cosmology Seminar, UIUC, IL, USA	September 20, 2017
	Cosmology Seminar, BNL, NY, USA	September 14, 2017
	Instrumentation Seminar, BNL, NY, USA	September 13, 2017
	The Nonlinear Universe, Smartno, Slovenia	July 20, 2017
	Fermilab 50th User Meeting, Fermilab, IL, USA	June 8, 2017
	KICP Colloquium, KICP, IL, USA	May 31, 2017
	Astronomy Chalk Talk, U of Chicago, IL, USA	January 24, 2017
	Cosmology Seminar, UCL, London, UK	December 21, 2016
	Astronomy Colloquium, UIUC, IL, USA	November 1, 2016
	KICP Friday Seminar, KICP, IL, USA	October 7, 2016
	Cosmology Seminar, KIPAC, CA, USA	May 16, 2016
	Kosmologietag Overview Talk, Bielefeld University, Germany	April 29, 2016
	Astronophysics Colloquium, ASIAA, Taipei, Taiwan	March 28, 2016
	RAS Specialist Discussion Meeting, London, UK	February 12, 2016
	Swiss Python Summit, Rapperswil, Switzerland	February 5, 2016
	Astrophysics Seminar, Rutgers University, NJ, USA	August 11, 2015
	Cosmology Lunch, Princeton University, NY, USA	August 10, 2015
	Fourteenth Marcel Grossmann Meeting (MG14) Rome, Italy	July 17, 2015
	APS April meeting, Baltimore, MD, USA	April 14, 2015

Weekly Colloquium, IEEC-CSIC, Barcelona, Spain	October 8, 2014
Astrophysics Seminar, ASIAA, Taipei, Taiwan	September 19, 2014
Research Seminar Shanghai Jiao Tong University, Shanghai, China	September 9, 2014
DES-LSST Joint Workshop, Fermilab, IL, USA	March 24, 2014
Swiss Cosmology Day, ETH Zurich, Switzerland	February 6, 2014
ETH Research Seminar, ETH Zurich, Zurich, Switzerland	September 19, 2013
Astrophysics Seminar, JPL, CA, USA	September 2012
Special Seminar, IPMU, Tokyo, Japan	August 2012
SnowPAC, Snowbird, CO, USA	March 22, 2012

Publication List

Lead author of 12+ refereed publications in weak gravitational lensing, cross-correlation, and other large-scale cosmology topics. Contributing author of 60+ publications. Full publication list available at [ORCHID](#) and [ADS](#)

SUBMITTED JOURNAL PUBLICATIONS

64. S. Adhikari, ...**C. Chang**... et al., *Probing Galaxy Evolution in Massive Clusters using ACT and DES: Splashback as a Cosmic Clock*. Arxiv e-print (2020) [2008.11663](#).
63. D. Tanoglidis, ...**C. Chang**... et al., *Shadows in the Dark: Low-Surface-Brightness Galaxies Discovered in the Dark Energy Survey*. Arxiv e-print (2020) [2006.04294](#).
62. C. Davis, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Cross-Correlation Redshifts in the DES – Calibration of the Weak Lensing Source Redshift Distributions*. ArXiv e-prints (2017) [1710.02517](#).
61. E. Krause, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Multi-Probe Methodology and Simulated Likelihood Analyses*. ArXiv e-prints (2017) [1706.09359](#).

REFEREED JOURNAL PUBLICATIONS

60. W. Hartley, **C. Chang**, S. Samani, A. Carnero Rosell, T. Davis et al., *The Impact of Spectroscopic Incompleteness in Direct Calibration of Redshift Distributions for Weak Lensing Surveys*. MNRAS **496**, 4769 (2020) [2003.10454](#)
59. M. Gatti, **C. Chang**, O. Friedrich, B. Jain, D. Bacon et al., *Dark Energy Survey Year 3 Results: Cosmology with Moments of Weak Lensing Mass Maps – Validation on Simulations*. MNRAS (2020) [1911.05568](#)
58. B. Mawdsley, D. Bacon, **C. Chang**, P. Melchior, E. Rozo et al., *Dark Energy Survey Year 1 Results: Wide-field Mass Maps via Forward Fitting in Harmonic Space*. MNRAS **493**, 5662 (2020) [1905.12682](#).
57. T. M. C. Abbott, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Cosmological Constraints from Cluster Abundances and Weak Lensing*. PRD **102**, 023509 (2020). [2002.11124](#)
56. D. Tanoglidis, **C. Chang**, J. Frieman, *Optimizing Galaxy Samples for Clustering Measurements in Photometric Surveys*. MNRAS **491**, 3535 (2020) [1908.07150](#).
55. Y. Fang, ...**C. Chang**... et al., *Dark Energy Survey Year 1 results: The Relationship between Mass and Light around Cosmic Voids*. MNRAS **490**, 3573 (2019) [1909.01386](#).
54. D. Korytov, ...**C. Chang**... et al., *CosmoDC2: A Synthetic Sky Catalog for Dark Energy Science with LSST*. ApJS **254**, 26 (2019) [1907.06530](#).
53. K. Vahi, M. Wang, **C. Chang** et al., *Workflows using Pegasus: Enabling Dark Energy Survey Pipelines*. ASPC **523**, 689 (2019).
52. T. M. C. Abbott, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Joint Analysis of Galaxy Clustering, Galaxy Lensing, and CMB Lensing Two-point Functions*. PRD **100**, 3541 (2019) [1810.02322](#).
51. Y. Omori, T. Giannantonio, A. Porredon, E. Baxter, **C. Chang** et al., *Dark Energy Survey Year 1 Results: tomographic cross-correlations between DES galaxies and CMB lensing from SPT+Planck*. PRD **100**, 3501 (2019) [1810.02342](#).
50. Y. Omori, E. Baxter, **C. Chang**, D. Kirk, A. Alarcon et al., *Dark Energy Survey Year 1 Results: Cross-correlation between DES Y1 galaxy weak lensing and SPT+Planck CMB weak lensing*. PRD **100**, 3517 (2019) [1810.02441](#).

49. T. M. C. Abbott, ...**C. Chang**... et al., *Cosmological Constraints from Multiple Probes in the Dark Energy Survey*. PRD **122**, 171301 (2019) [1811.02375](#).
48. T. M. C. Abbott, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Constraints on Extended Cosmological Models from Galaxy Clustering and Weak Lensing*. PRD **99**, 123505 (2019) [1810.02499](#).
47. J. Prat, E. Baxter, T. Shin, C. Sanchez, **C. Chang** et al., *Cosmological lensing ratios with DES Y1, SPT and Planck*. MNRAS **487**, 1363 (2019) [1810.02212](#).
46. T. Shin, S. Adhikari, E. Baxter, **C. Chang**, B. Jain et al., *Measurement of the Splashback Feature around SZ-selected Galaxy Clusters with DES, SPT and ACT*. MNRAS **487**, 2900 (2019) [1811.06081](#).
45. **C. Chang**, M. Wang, S. Dodelson, T. Eifler, C. Heymans et al., *A Unified Analysis of Four Cosmic Shear Surveys*. MNRAS **482**, 3696 (2019) [1808.07335](#).
44. M. Fagioli, ...**C. Chang**... et al., *Forward Modeling of Spectroscopic Galaxy Surveys: Application to SDSS*. JCAP **11**, 015 (2018) [1803.06343](#).
43. E. Baxter, Y. Omori, **C. Chang**, T. Giannantonio, D. Kirk et al., *Dark Energy Survey Year 1 Results: Methodology and Projections for Joint Analysis of Galaxy Clustering, Galaxy Lensing, and CMB Lensing Two-point Functions*. PRD **99**, 023508 (2019) [1802.05257](#).
42. T. M. C. Abbott, ...**C. Chang**... et al., *The Dark Energy Survey Data Release 1*. ApJS **239**, 18 (2018) [1801.03181](#).
41. R. Cawthon, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Calibration of redMaGiC Redshift Distributions in DES and SDSS from Cross-Correlations*. MNRAS **481**, 2427 (2018) [1712.07298](#).
40. **C. Chang**, E. Baxter, B. Jain, C. Sanchez, S. Adhikari et al., *The Splashback Feature around DES Galaxy Clusters: Galaxy Density and Weak Lensing Profiles*. ApJ **864**, 83 (2018) [1710.06808](#).
39. T. M. C. Abbott, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing*. PRD **98**, 043526 (2018) [1708.01530](#).
38. J. Prat, ...**C. Chang** et al., *Dark Energy Survey Year 1 Results: Galaxy-Galaxy Lensing*. PRD **98**, 042005 (2018) [1708.01537](#).
37. M. A. Troxel, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Cosmological Constraints from Cosmic Shear*. PRD **98**, 043528 (2018) [1708.01538](#).
36. M. Troxel, E. Krause, **C. Chang**, T. F. Eifler, O. Friedrich et al., *Survey Geometry and the Internal Consistency of Recent Cosmic Shear Measurements*. MNRAS **476**, 4998 (2018) [1804.10663](#).
35. N. Jeffrey, ... **C. Chang**..., et al., *Improving Weak Lensing Mass Map Reconstructions using Gaussian and Sparsity Priors: Application to DES SV*. MNRAS **479**, 2871 (2018) [1801.08945](#).
34. O. Friedrich, ...**C. Chang**... et al., *Density Split Statistics: Joint Model of Counts and Lensing in Cells*. PRD **98**, 023508 (2018) [1710.05162](#).
33. D. Gruen, ...**C. Chang**... et al., *Density Split Statistics: Cosmological Constraints from Counts and Lensing in Cells in DES Y1 and SDSS*. PRD **98**, 023507 (2018) [1710.05045](#).
32. B. Hoyle, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Redshift Distributions of the Weak Lensing Source Galaxies*. MNRAS **478**, 592 (2018) [1708.01532](#).

31. M. Gatti, ...**C. Chang**... et al., *Dark Energy Survey Year 1 Results: Cross-Correlation Redshifts - Methods and Systematics Characterization*. MNRAS (2018) [1709.00992](#).
30. **C. Chang**, A. Pujol, B. Mawdsley, D. Bacon, J. Elvin-Poole, et al., *Dark Energy Survey Year 1 Results: Curved-Sky Weak Lensing Mass Map*. MNRAS **475**, 3165 (2018) [1708.01535](#).
29. E. Baxter, **C. Chang**, B. Jain, S. Adhikari, N. Dalal et al., *The Halo Boundary of Galaxy Clusters in the SDSS*. ApJ **841**, 18 (2017) [1702.01722](#).
28. J. Akeret, **C. Chang**, A. Lucchi, A. Refregier, *Radio Frequency Interference Mitigation using Deep Convolutional Neural Networks*. A&C **18**, 35–39 (2017) [1609.09077](#).
27. J. Akeret, S. Seehars, **C. Chang**, C. Monstein, A. Amara, A. Refregier, *HIDE & SEEK: End-to-End Packages to Simulate and Process Radio Survey Data*. A&C **18**, 8–17 (2017) [1607.07443](#).
26. **C. Chang**, C. Monstein, J. Akeret, S. Seehars, A. Refregier et al., *An Integrated System at the Bleien Observatory for Mapping the Galaxy*. MNRAS **464**, 1727–1737 (2017) [1607.07451](#).
25. N. MacCrann, ...**C. Chang**... et al., *Inference from the Small Scales of Cosmic Shear with Current and Future Dark Energy Survey Data*. MNRAS **465**, 2567–2583 (2017). [1608.01838](#).
24. L. Clerkin, ...**C. Chang**... et al., *Testing the Lognormality of the Galaxy and Weak Lensing Convergence Distributions from Dark Energy Survey Maps*. MNRAS **466**, 1444–1461 (2017). [1605.02036](#).
23. T. Kacprzak, ... **C. Chang**..., et al., *Cosmology Constraints from Shear Peak Statistics in Dark Energy Survey Science Verification Data*. MNRAS **463**, 3653–3673 (2016), [1603.05040](#).
22. B. Nord, ... **C. Chang**..., et al., *SPOKES: An End-to-End Simulation Facility for Spectroscopic Cosmological Surveys*. A&C **15**, 1–15 (2016), [1602.01480](#).
21. D. Kirk, Y. Omori, A. Benoit-Levy, R. Cawton, **C. Chang** et al., *Cross-correlation of Gravitational Lensing from DES Science Verification, SPT and Planck*. MNRAS **459**, 21 (2016), [1512.04535](#).
20. A. Pujol, **C. Chang**, E. Gazganaga, A. Amara, A. Refregier et al., *A New Method to Measure Galaxy Bias from the Density and Weak Lensing Fields*. MNRAS **462**, 35–47 (2016) [1601.00160](#).
19. **C. Chang**, A. Pujol, E. Gazganaga, A. Amara, A. Refregier et al., *Galaxy Bias from the DES Science Verification Data: Combining Galaxy Density Maps and Weak Lensing Maps*. MNRAS **459**, 3203 (2016), [1601.00405](#).
18. The Dark Energy Survey Collaboration .. **C. Chang**..., et al., *Cosmology from Cosmic Shear with DES Science Verification Data*. PRD **94**, 022001 (2016), [1507.05552](#).
17. M. Jarvis, ... **C. Chang**..., et al., *The DES Science Verification Weak Lensing Shear Catalogs*. MNRAS **460**, 2245 (2016), [1507.05603](#).
16. M.R. Becker, ... **C. Chang**..., et al., *Cosmic Shear Measurements with DES Science Verification Data*. PRD **94**, 022002 (2016), [1507.05598](#).
15. B. Leistedt, ... **C. Chang**..., et al., *Mapping and Simulating Systematics due to Spatially-Varying Observing Conditions in DES Science Verification Data*. ApJS **226**, 24 (2016), [1507.05647](#).
14. C. Bonnett, ... **C. Chang**..., et al., *Redshift Distributions of Galaxies in the DES Science Verification Shear Catalogue and Implications for Weak Lensing* PRD **94**, 042005 (2016), [1507.05909](#).

13. C. Bruderer, **C. Chang**, A. Refregier, A. Amara, J. Berge et al., *Calibrated Ultra Fast Image Simulations for the Dark Energy Survey*. *ApJ* **817**, 25 (2016), [1504.02778](#).
12. **C. Chang**, C. Monstein, A. Refregier, A. Amara, A. Glauser et al., *Beam Calibration of Radio Telescopes with Drones*. *PASP* **127**, 1131–1143, (2015), [1505.05885](#).
11. **C. Chang**, V. Vikram, B. Jain, D. Bacon, A. Amara et al., *Wide-Field Lensing Mass Maps from DES Science Verification Data*. *PRL* **115**, 051301 (2015), [1505.01871](#).
10. V. Vikram, **C. Chang**, B. Jain, D. Bacon, A. Amara et al., *Wide-Field Lensing Mass Maps from DES Science Verification Data: Methodology and Detailed Analysis*. *PRD* **92**, 022006 (2015), [1504.03002](#).
9. J.R. Peterson, ... **C. Chang**,... et al., *Simulation of Astronomical Images from Optical Survey Telescopes using a Comprehensive Photon Monte Carlo Approach*. *ApJS* **218**, 14 (2015), [1504.06570](#).
8. **C. Chang**, M.T. Busha, R.H. Wechsler, A. Refregier, A. Amara et al., *Modelling the Transfer Function for the Dark Energy Survey*. *ApJ* **801**, 73 (2015), [1411.0032](#).
7. **C. Chang** and B. Jain, *Delensing Galaxy Surveys*. *MNRAS* **443**, 102 (2014), [1405.1432](#).
6. R. Mandelbaum, B. Rowe, J. Bosch, **C. Chang**, F. Courbin et al., *The Third Gravitational Lensing Accuracy Testing (GREAT3) Challenge Handbook*. *ApJS* **212**, 5 (2014), [1308.4982](#).
5. **C. Chang**, M. Jarvis, B. Jain, S.M. Kahn, D. Kirkby et al., *The Effective Number Density of Galaxies for Weak Lensing Measurements in the LSST Project*. *MNRAS* **434**, 2121 (2013), [1305.0793](#).
4. D. Bard, J.M. Kratochvil, **C. Chang**, M. May, S.M. Kahn et al., *Effect of Measurement Errors on Predicted Cosmological Constraints from Shear Peak Statistics with LSST*. *ApJ* **774**, 49 (2013), [1301.0830](#).
3. **C. Chang**, S.M. Kahn, J.G. Jernigan, J.R. Peterson, Y. AlSayyad et al., *Spurious Shear in Weak Lensing with LSST*. *MNRAS* **428**, 2695 (2013), [1206.1378](#).
2. **C. Chang**, P.J. Marshall, J.G. Jernigan, J.R. Peterson, S.M. Kahn et al., *Atmospheric PSF Interpolation for Weak Lensing in Short Exposure Imaging Data*. *MNRAS* **427**, 2572 (2012), [1206.1383](#).
1. J. Singal, R. Schindler, **C. Chang**, P. Czodrowski, and P. Kim, *A Multi-Chamber System for Analyzing the Outgassing, Deposition, and Associated Optical Degradation Properties of Materials in a Vacuum*. *Review of Scientific Instruments* **81**, 025101 (2010), [0910.4198](#).

ARXIV E-PRINTS,
CONFERENCE
PROCEEDINGS,
POSTERS

11. D. Scolnic, ... **C. Chang**,... et al., *Optimizing the LSST Observing Strategy for Dark Energy Science: DESC Recommendations for the Deep Drilling Fields and other Special Programs*. ArXiv e-prints (2018) [1812.00516](#).
10. M. Lochner, ... **C. Chang**,... et al., *Optimizing the LSST Observing Strategy for Dark Energy Science: DESC Recommendations for the Wide-Fast-Deep Survey*. ArXiv e-prints (2018) [1812.00515](#).
9. The LSST Dark Energy Science Collaboration, *LSST Dark Energy Science Collaboration*. ArXiv e-prints (2012) [1211.0310](#).
8. J.R. Peterson, ... **C. Chang**,... et al., *LSST Image Simulations*. American Astronomical Society Meeting Abstracts, **219**, (2012).
7. A. Bradshaw, ... **C. Chang**,... et al., *LSST Probes of Dark Energy: New Energy vs New Gravity*. American Astronomical Society Meeting Abstracts, **219**, (2012).

6. R.R. Gibson, ... **C. Chang**..., et al., *A Framework for End to End Simulations of the Large Synoptic Survey Telescope*. *Astronomical Data Analysis Software and Systems XX*, **442**, p.329, (2011).
5. J. Pizagno, ... **C. Chang**..., et al., *Strong Lenses with LSST: Simulated 10-year Movies of Multiply-Imaged Quasars*. *American Astronomical Society Meeting Abstracts*, **217**, (2011).
4. **C. Chang**, S.M Kahn, G. Jernigan, J.R. Peterson, A. Rasmussen et al., *Shear Systematics in LSST Simulated Images*. *American Astronomical Society Meeting Abstracts*, **217**, (2011).
3. G. Jernigan, ... **C. Chang**..., et al., *Strong Lenses with LSST: Simulated 10-year Movies of Multiply-Imaged Quasars*. *American Astronomical Society Meeting Abstracts*, **217**, (2011).
2. K.S. Krughoff, ... **C. Chang**..., et al., *Strong Lenses with LSST: Simulated 10-year Movies of Multiply-Imaged Quasars*. *American Astronomical Society Meeting Abstracts*, **217**, (2011).
1. A. Connolly, ... **C. Chang**..., et al., *Simulating the LSST system*. *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series 7738*, p.1, (2010). [SPIE](#).