

MENG-XIANG LIN

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CURRENT POSITION

University of Pennsylvania

September 2022 - Present

Postdoctoral Fellow at Center of Particle Cosmology

EDUCATION

The University of Chicago

September 2015 - August 2022

Ph.D. in Astronomy and Astrophysics

Advisor: Prof. Wayne Hu

Peking University

September 2011 - July 2015

B.S. in Astronomy and Astrophysics

AWARDS AND HONORS

Brinson Fellowship (U. Chicago)

2016 & 2017

The Guanhua Scholarship (Peking U.)

2014

The Excellence Award of Study (Peking U.)

2013 & 2014.

PUBLICATION

(Total citations: **797** by 2024.10.13)

Major contributions:

Wayne Hu, Qiuyue Liang, **Meng-Xiang Lin**, Mark Trodden, “Testing Gravity with Realistic Gravitational Waveforms in Pulsar Timing Arrays”, Submitted to JCAP. arXiv: 2408.11774

Qiuyue Liang, **Meng-Xiang Lin**, Mark Trodden, Sam S. C. Wong, “Probing Parity Violation in the Stochastic Gravitational Wave Background with Astrometry”, Phys. Rev. D 109, 083028 (2024). arXiv: 2309.16666

Meng-Xiang Lin, Bhuvnesh Jain, Marco Raveri, Eric J. Baxter, Chihway Chang, Sujeong Lee, Jessica Muir, “Late Time Modification of Structure Growth and the S8 Tension”, Phys. Rev. D 109, 063523 (2024). arXiv: 2308.16183

Qiuyue Liang, **Meng-Xiang Lin**, Mark Trodden, “A Test of Gravity with Pulsar Timing Arrays”, JCAP 11, 042 (2023). arXiv: 2304.02640

Meng-Xiang Lin, Evan McDonough, J. Colin Hill, Wayne Hu, “Dark matter trigger for early dark energy coincidence”, Phys. Rev. D 107, 103523 (2023). arXiv:2212.08098

Jose Maria Ezquiaga, Wayne Hu, Macarena Lagos, **Meng-Xiang Lin**, Fei Xu, “Modified gravitational wave propagation with higher modes and its degeneracies with lensing”, JCAP 08, 016 (2022). arXiv:2203.13252

Evan McDonough, **Meng-Xiang Lin**, J. Colin Hill, Wayne Hu, Shengjia Zhou, “The Early Dark Sector, the Hubble Tension, and the Swampland”, Phys. Rev. D 106, 043525 (2022). arXiv:2112.09128

Jose Maria Ezquiaga, Wayne Hu, Macarena Lagos, **Meng-Xiang Lin**, “Gravitational wave propagation beyond general relativity: waveform distortions and echoes”, *JCAP* 11, 048 (2021). arXiv:2108.10872

Meng-Xiang Lin, Wayne Hu, Marco Raveri, “Testing H_0 in acoustic dark energy models with Planck and ACT polarization data”, *Phys. Rev. D* 102, 123523 (2020). arXiv:2009.08974

Meng-Xiang Lin, Giampaolo Benevento, Wayne Hu, Marco Raveri, “Acoustic Dark Energy: Potential Conversion of the Hubble Tension”, *Phys. Rev. D* 100, 063542 (2019). arXiv:1905.12618

Meng-Xiang Lin, Marco Raveri, Wayne Hu, “Phenomenology of modified gravity at recombination”, *Phys. Rev. D* 99, 043514 (2019). arXiv:1810.02333

Meng-Xiang Lin, Ren-Xin Xu, Bing Zhang, “Oscillation Driven Magnetospheric Activity In Pulsars”, *Astrophys. J.* 799, 152 (2015). arXiv:1512.04609

Minor contributions:

DES and SPT and ACT collaborations: D. Anbajagane et al, “Cosmological shocks around galaxy clusters: A coherent investigation with DES, SPT & ACT”, *MNRAS* 527, 9378 (2024). arXiv:2310.00059

Macarena Lagos, **Meng-Xiang Lin**, Wayne Hu, “Curvature perturbations in the effective field theory of inflation”, *Phys. Rev. D* 100, 123507 (2019). arXiv:1908.08785

Miguel Escudero, Asher Berlin, Dan Hooper, **Meng-Xiang Lin**, “Toward (finally!) ruling out Z and Higgs mediated dark matter models”, *JCAP* 12, 029 (2016). arXiv:1609.09079

S. Dai, M. C. Smith, **M. X. Lin**, Y. L. Yue, G. Hobbs, R. X. Xu, “Gravitational Microlensing by Neutron Stars and Radio Pulsars: Event Rates, Timescale Distributions, and Mass Measurements”, *Astrophys. J.* 802, 120 (2015). arXiv:1502.02776

RESEARCH TALKS

Invited Talk Kashiwa-no-ha Dark Matter and Cosmology Symposium (Satellite workshop of COSMO 2024), IPMU, Tokyo, Japan, Oct 2024; “*Anisotropy of Pulsar Timing Arrays and its correlation with Galaxy Surveys*”

Contributed Talk Fundamental Physics from Future Spectroscopic Surveys, LBNL, Berkeley, USA, May 2024; “*Dark Matter Tracking Modification of Structure Growth and the S_8 tension*”

Invited Talk Hong Kong City University, Hong Kong, China, Jan 2024; “*Testing Fundamental Physics with Gravitational Wave Propagations*”

Invited Talk Nanjing University, Nanjing, China, Jan 2024; “*Solutions towards the H_0 tension and S_8 tension*”

Invited Talk Zhejiang University, Hangzhou, China, Jan, 2024; “*Solutions towards the H_0 tension and S_8 tension*”

Invited Talk Beijing Normal University, Beijing, China, Jan 2024; “*Solutions towards the H_0 tension and S_8 tension*”

Invited Talk Peking University, Beijing, China, Jan, 2024; “*Testing Fundamental Physics with Gravitational Wave Propagations*”

Invited Talk Shanghai Jiao Tong University, Shanghai, China, Dec 2023; “*Solutions towards the H_0 tension and S_8 tension*”

Contributed Talk The 32nd Texas Symposium, Shanghai, China, Dec 2023; “*Testing Fundamental Physics with PTA and Astrometry measurements of Stochastic Gravitational Wave Background*”

Invited Talk IPMU, Tokyo, Japan, Dec 2023; “*Solutions towards the H_0 tension and S_8 tension*”

Invited Lunch Talk University of Chicago, Chicago, USA, Nov 2023; “*Dark Energy Tracking Modification of Structure Growth and the S_8 Tension*”

Invited Talk CITA, Toronto, Canada, Nov 2023; “*Late Time Modification of Structure Growth and the S_8 Tension*”

Invited Talk Penn/PDT Partners workshop, PDT Partners, New York, USA, May 2023; “*Testing Gravity with Gravitational Wave Propagation*”

Contributed Talk The 5th neighborhood workshop, Penn State University, State College, USA, April 2023; “*A Dark Matter Trigger for Early Dark Energy Coincidence*”

Invited Talk Testing Gravity 2023, Simon Fraser University, Vancouver, Canada, January 2023; “*Gravitational wave propagation beyond GR and its degeneracies with lensing*”

Symposium KICP/FNAL/UIUC Symposium, University of Chicago, Chicago, USA, May 2022; “*Gravitational wave propagation beyond GR and its degeneracies with lensing*”

Invited Talk MIT/Tufts Cosmology Seminar, MIT, Cambridge, USA, April 2022; “*Paths towards the Hubble Tension Solutions*”

Invited Talk Princeton University, Princeton, USA, December 2021; “*Seeking solutions for the Hubble tension*”

Contributed Talk MWRM2021, UIUC, Champaign, USA, November 2021; “*Gravitational wave propagation beyond GR: waveform distortions and echoes*”

Invited Talk University of Pennsylvania, Philadelphia, USA, October 2021; “*Seeking solutions for the Hubble tension*”

Invited Talk Columbia University, New York, USA, October 2021; “*Seeking solutions for the Hubble tension*”

Invited Talk SUSY2021, Beijing, China, August 2021; “*Gravitational wave propagation beyond GR: waveform distortions and echoes*”

Selected Talk COSMO19, RWTH Aachen University, Aachen, Germany, September 2019; “*Acoustic Dark Energy: Potential Conversion of the Hubble Tension*”

Postdoc Symposium University of Chicago, Chicago, USA, March 2019; “*Separate Universe and Consistency Relation beyond slow-roll inflation*”

Contributed Talk H_0 workshop, University of Chicago, Chicago, USA, October 2018; “*Modified Gravity On Reducing the H_0 tension*”

Poster TRISEP Summer School, Perimeter Institute, Waterloo, Canada, July 2018; “*Phenomenology of Modified Gravity at Recombination*”

TEACHING EXPERIENCE

Teaching Assistant, The Physics of Stars	2020
Teaching Assistant, Stars	2018
Teaching Assistant, The Milky Way	2017
Teaching Assistant, The Physical Universe	2017
Teaching Assistant, Current Topics in Astrophysics	2016

SERVICES

Organizer of Astro Journal Club at University of Pennsylvania

2022-2023

PROFESSIONAL SKILLS

Computer Languages	python, C/C++, MATLAB, fortran
Software & Tools	Mathematica

EXTERNAL LINKS

Personal Website	https://m-x-lin.github.io/index.html
ORCID	https://orcid.org/0000-0003-2908-4597