

Xinyu Li

CONTACT INFORMATION	CITA, 60 St George Street Toronto, ON, M5R 2M8, Canada	Homepage: http://xinyuli.netlify.app Email: xli@cita.utoronto.ca
NATIONALITY	Chinese	
RESEARCH INTERESTS	High Energy Astrophysics, Magnetars, Magnetohydrodynamics, Force-Free Electrodynamics, Plasma Astrophysics, Cosmology, Large Scale Structure, Dark Matter, Galaxy Formation	
EDUCATION	Columbia University , New York, NY, USA Ph.D., Physics, August 2019 <ul style="list-style-type: none">• Thesis Topic: <i>Magnetodynamics Inside and Outside Magnetars</i>• Advisor: Prof Andrei Beloborodov Perimeter Institute / University of Waterloo , Waterloo, ON, Canada M.Sc, Theoretical Physics, June 2013 <ul style="list-style-type: none">• Thesis Topic: <i>Towards an Investigation of Turbulence in High Dimensions</i>• Advisor: Prof Luis Lehner & Prof Robert Myers The University of Hong Kong , HKSAR, China B.Sc, Physics and Mathematics (Double Major), June 2012 <ul style="list-style-type: none">• First Class Honor Tsinghua University , Beijing, China Physics and Mathematics, August 2008 - June 2009	
EXPERIENCES	<ul style="list-style-type: none">• Postdoctoral Fellow Canadian Institute for Theoretical Astrophysics & Perimeter Institute	2019/9-
AWARDS	<ul style="list-style-type: none">• Jeffrey L. Bishop Fellowship, CITA• Joseph C. Pfister Fellowship, Columbia University• Dean's Fellowship, GSAS, Columbia University• Perimeter Scholars International Scholarship, Perimeter Institute• Li Po Kwai Scholarship, The University of Hong Kong• HSBC Scholarship for Mainland Students, The University of Hong Kong	2021 2018 2013 2012 2011/12 2011
JOURNAL REVIEWER	The Astrophysical Journal Letters, The Astrophysical Journal, Journal of High Energy Physics, Astrophysics and Space Science, Physical Letter B, New Astronomy	
PRESENTATIONS	<ul style="list-style-type: none">• Max Planck Institute for Gravitational Physics• North American Einstein Toolkit Workshop• MIAPP High-Energy Plasma Phenomena in Astrophysics• Department of Astronomy, Columbia University• Perimeter Institute• KIAS Workshop on Cosmology and Structure Formation• KIAA, Peking University• Department of Astronomy, Tsinghua University• T.D.Lee Institute• Department of Astronomy, Nanjing University• Department of Astronomy, HUST	Sep 2021 July 2021 July 2021 March 2021 March 2021 Nov 2020 Oct 2020 Sep 2020 May 2020 Jan 2020 Jan 2020

• Department of Astronomy, Shanghai Jiaotong University	Sep 2020
• Perimeter Institute	Nov 2018
• TAC, University of California, Berkeley	Oct 2018
• KIPAC, Stanford University	Oct 2018
• TAPIR, California Institute of Technology	Oct 2018
• CCA, Flatiron Institute	Oct 2018
• Department of Astrophysical Sciences, Princeton University	Sep 2018
• Department of Physics, the University of Hong Kong	Aug 2018

NUMERICAL
CODES

Developer: [ENZO](#), [FFE-WENO](#), [Einstein Toolkit](#)
Experienced user: [TRISTAN-MP](#), [RAMSES](#)

REFERENCES

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1. Tomer D. Yavetz, **Xinyu Li**, Lam Hui, *Construction of Wave Dark Matter Halos: Numerical Algorithm and Analytical Constraints*, arXiv: 2109.06125
2. **Xinyu Li**, Andrei M. Beloborodov, Lorenzo Sironi, *Fast dissipation of Colliding Alfvén Waves in a Magnetically Dominated Plasma*, The Astrophysical Journal, 915, 101 (2021)
3. **Xinyu Li** and Daniel Siegel, *Neutrino Fast Flavor Conversions in Neutron-star Post-Merger Accretion Disks*, Physical Review Letters, 126, 25, 251101 (2021)
4. Neal Dalal, Jo Bovy, Lam Hui, **Xinyu Li** *Don't cross the streams: caustics from Fuzzy Dark Matter*, Journal of Cosmology and Astroparticle Physics, 03, 076 (2021)
5. **Xinyu Li**, Lam Hui, Tomer D. Yavetz, *Oscillations and Random Walk of the Soliton Core in a Fuzzy Dark Matter Halo*, Physical Review D, 103, 023508 (2021)
6. Alexander Y. Chen, Yajie Yuan, Andrei M. Beloborodov and **Xinyu Li**, *Relativistic Alfvén Waves Entering Charge Starvation in the Magnetospheres of Neutron Stars*, arXiv:2010.15619
7. Lam Hui, Austin Joyce, Michael J. Landry, **Xinyu Li** (alphabetical order), *Vortices and waves in light dark matter*, Journal of Cosmology and Astroparticle Physics, 01, 011 (2021).
8. Brummel-Smith, C., Bryan, G., Butsky, I., et al. *ENZO: An Adaptive Mesh Refinement Code for Astrophysics*, Journal of Open Source Software, 4, 1636.
9. **Xinyu Li**, Philip Chang, Yuri Levin, Christopher D. Matzner, Philip J. Armitage, *Simulation of a Compact Object with Outflows Moving Through a Gaseous Background*, Monthly Notices of the Royal Astronomical Society, 494, 2 (2020)
10. F.Y. Wang, **Xinyu Li**, D. O. Chernyshov, C.Y. Hui, G.Q. Zhang and K.S. Cheng, *Consequences of Energetic Magnetar-like Outbursts of Nearby Neutron Stars: ^{14}C Events and the Cosmic Electron Spectrum*, The Astrophysical Journal, 887, 2, (2019)
11. Lam Hui, Daniel Kabat, **Xinyu Li**, Luca Santoni and Sam S. C. Wong (alphabetical order), *Black hole hair from scalar dark matter*, Journal of Cosmology and Astroparticle Physics, 06, 038 (2019)
12. **Xinyu Li**, Jonathan Zrake and Andrei Beloborodov, *Dissipation of Alfvén Waves in Relativistic Magnetospheres of Magnetars*, The Astrophysical Journal, 881, 1, (2019)
13. **Xinyu Li**, Lam Hui and Greg Bryan, *Numerical and Perturbative Computations of the Fuzzy Dark Matter Model*, Physical Review D, 99, 63509, (2019)
14. **Xinyu Li**, Yuri Levin and Andrei Beloborodov, *Magnetar Outbursts from Avalanches of Hall Waves and Crustal Failures*, The Astrophysical Journal, 189, 12, (2016)
15. Andrei Beloborodov and **Xinyu Li**, *Magnetar Heating*, The Astrophysical Journal, 261, 20, (2016)
16. **Xinyu Li** and Andrei Beloborodov, *Plastic Damping of Alfvén Waves in Magnetar Flares and Delayed Afterglow Emission*, The Astrophysical Journal, 815, 25, (2015)
17. **Xinyu Li**, Fayin Wang and K.S. Cheng, *Gravitational Effects of Condensate Dark Matter on Compact Stellar Objects*, Journal of Cosmology and Astroparticle Physics, 10, 031, (2012)
18. **Xinyu Li**, T. Harko and K.S.Cheng, *Condensate Dark Matter Stars*, Journal of Cosmology and Astroparticle Physics, 06, 001, (2012)