

PERSONAL INFORMATION	Relativity Group, Dept. of Physics University of Illinois Urbana-Champaign (UIUC) Urbana, IL 61801	<a href="mailto:rtso@illinois.edu">rtso@illinois.edu</a> <a href="http://www.rhondaletso.org">www.rhondaletso.org</a>
RESEARCH	Gravitational Waves, Theory & Tests of Relativity.	
EDUCATION	<p><b>California Institute of Technology (Caltech)</b>, Pasadena, CA USA. PhD, Physics, 2022. M.S., Physics, 2019. Advisor: Prof. Yanbei Chen. Thesis Title: <i>Fundamental Ways to Probe Gravitational Waves Across Its Spectrum and Propagation</i></p> <p><b>Embry-Riddle Aeronautical University (ERAU)</b>, Prescott, AZ USA. B.S., Space Physics, 2012. Senior Thesis Advisor: Prof. Michele Zanolin.</p>	
AWARDS, GRANTS, FELLOWSHIPS	<p><b>NSF MPS-Ascend Postdoctoral Research Fellowship</b> 2022 - Present</p> <p><b>Kavli Summer Fellowship</b> 2017</p> <p><b>NSF Graduate Research Fellowship</b> 2015 - 2020</p> <p><b>Ford Foundation Predoctoral Fellowship</b> 2015 - 2020</p> <p><b>Gates Graduate Scholar</b> 2015 - 2020</p> <p><b>Gates Millennium Scholar</b> 2007</p>	
RESEARCH EMPLOYMENT	<p><b>UIUC</b>, Urbana-Champaign, IL USA. July 2022 - Present</p> <ul style="list-style-type: none"> <li>· Position: NSF MPS-Ascend Fellow in the Relativity Group and ICASU <sup>1</sup>.</li> <li>Supervisor: Prof. Nicolás Yunes.</li> </ul> <p><b>Caltech</b>, Pasadena, CA USA. 2015 - 2022</p> <ul style="list-style-type: none"> <li>· Position: Fully-supported Graduate Student in TAPIR <sup>2</sup>.</li> <li>Advisor: Prof. Yanbei Chen.</li> </ul> <p><b>Niels Bohr Institute</b>, Copenhagen DNK. Summer 2017</p> <ul style="list-style-type: none"> <li>· Position: Kavli Summer Fellow.</li> <li>Collaborators: Prof. Jonathan Gair, Prof. Daniel E. Holz, and Prof. Joey S. Key.</li> </ul> <p><b>Columbia University</b>, New York, NY USA. 2013 - 2015</p> <ul style="list-style-type: none"> <li>· Position: Research Staff Assistant.</li> <li>Advisor: Prof. Janna Levin.</li> </ul> <p><b>IUCSS</b> <sup>3</sup>, Bloomington, IN USA. Summer 2011</p> <ul style="list-style-type: none"> <li>· Position: Undergraduate research student.</li> <li>Advisor: Prof. V.A. Kostelecký.</li> </ul> <p><b>University of Chicago</b>, Chicago, IL USA. Summer 2010</p> <ul style="list-style-type: none"> <li>· Position: NSF REU <sup>4</sup> student.</li> <li>Advisor: Prof. Robert Wald.</li> </ul>	

<sup>1</sup>Illinois Center for Advanced Studies of the Universe<sup>2</sup>Theoretical Astrophysics Including Relativity<sup>3</sup>Indiana University Center for Spacetime Symmetries<sup>4</sup>National Science Foundation Research Experience for Undergraduates

MENTORING	<b>Graduate Student</b>	
	Domenica Garzon, UIUC.	2022-Present
	<b>Undergraduate Students</b>	
	Joseph Mina, FSRI <sup>5</sup> , Caltech.	Summer 2020
	Katie Chamberlain (co-mentor: Davide Gerosa), SURF <sup>6</sup> , Caltech.	Summer 2017
TEACHING EXPERIENCE	<b>Teaching Assistant</b>	
	· Phys 3: Introductory Physics Laboratory, Caltech.	2021-22
	· Head TA Phys 1b & 2b: EM & Quantum Mechanics, Caltech.	Winter 2021
	· Phys 1a: Classical Mechanics, Caltech.	Fall 2020
	<b>Other Experience</b>	
	· Scribe for Disability Resources, Northern Arizona University.	2012-2013
· Math educator at Flagstaff High School (Kinłani Dormitory).	2012-2013	
· Math tutor at Joaquin Bustoz Math-Science Honors Program.	Summer 2009	
PROFESSIONAL ACTIVITIES	<b>Cosmic Explorer Consortium</b>	2021 - Present
	<b>LIGO Scientific Collaboration</b>	2015 - Present
	· Testing GR Subgroup.	
	· Education & Public Outreach Subgroup.	
	<b>American Physical Society</b>	2015 - Present
	· Division of Gravitational Physics.	
· Division of Astrophysics.		
	<b>Conference Organizer</b>	
	· Illinois AstroFest 2023, UIUC.	April 2023
COMMUNITY OUTREACH	<b>STEM Outreach for Native American Communities</b>	
	· NSF MPS (2023) outreach component to translate LIGO's discoveries to the Navajo language and expand Native American outreach efforts.	
	· High school STEM Outreach on the Navajo Nation in 2013 and 2016-2018. Partnered with Jasmine (Kiranjyot) Gill and Marek Szczepańczyk in 2016 and 2017. Partnered with the LIGO Collaboration on some of these efforts.	
	· STEM Outreach on Yakima Reservation in 2017 (with Corey Grey).	
	· Continued participation in SACNAS <sup>7</sup> and AISES <sup>8</sup> National Conferences.	
	<b>Caltech Science Outreach</b>	2016 - 2022
	· Extensive outreach with LIGO Lab, NASA Jet Propulsion Lab (JPL), and <a href="#">Caltech Astronomy Outreach</a> . Repeated volunteering at JPL Open House.	
	<b>Guest Speaker for <i>Los Angeles Astronomy on Tap Series</i></b>	June 12, 2017
<b>Columbia University Science Outreach</b>	2013 - 2015	
· Extensive public outreach with <a href="#">Columbia Astronomy Public Outreach</a> .		
SKILLS	Proficiency in Python, Mathematica, MATLAB, Maple, C, LaTeX.	
	Languages: English (native), Navajo (limited working proficiency).	

<sup>5</sup>Freshmen Summer Research Institute

<sup>6</sup>Summer Undergraduate Research Fellow

<sup>7</sup>Society for Advancement of Chicanos and Native Americans in Science

<sup>8</sup>American Indian Science and Engineering Society

SHORT-AUTHOR  
PUBLICATIONS

1. **R. Tso**, D. Gerosa, and Y. Chen: *Optimizing LIGO with LISA forewarnings to vastly improve black-hole spectroscopy*, *PRD*, **99**, 124043 (2019).
2. **R. Tso** and M. Zanolin: *Measuring violations of General Relativity from single gravitational wave detection by non-spinning binary systems: higher-order asymptotic analysis*, *PRD*, **93**, 124033 (2016).
3. V.A. Kostelecký, N. Russell, and **R. Tso**: *Bipartite Riemann-Finsler geometry and Lorentz violation*, *PLB* **716**, 470-474 (2012).
4. **R. Tso** and Q.G. Bailey: *Light-bending tests of Lorentz invariance*, *PRD*, **84**, 085025 (2011).

COLLABORATION  
PUBLICATIONS

From 2015–Present, I was coauthor on over 50 refereed LIGO and/or LIGO/Virgo collaboration publications. I was a code reviewer on 3 publications for weak-field (Post-Newtonian -1.0) coefficient constraints and a member of the Paper Writing Team of LIGO’s first testing GR paper with binary neutron stars:

1. B. P. Abbott *et al* (LIGO Scientific Collaboration and Virgo Collaboration): *Tests of General Relativity with GW170817*, *PRL*, **123**, 011102 (2019).

CONFERENCE  
PROCEEDINGS

1. **R. Tso**, M. Isi, Y. Chen, and L. C. Stein (2016): *Modeling the Dispersion and Polarization Content of Gravitational Waves for Tests of General Relativity*, *Proceedings of the Seventh Meeting on CPT and Lorentz Symmetry*, pp. 205-208.
2. **R. Tso** and Q.G. Bailey (2010): *Gravitational Lensing and Light Bending as Tests of Lorentz Symmetry*, *Proceedings of the Fifth Meeting on CPT and Lorentz Symmetry*, pp. 283-286.

INVITED  
PRESENTATIONS

1. *Propagation of Gravitational Waves and Constraining Screened Massive Gravitons*. ARC Seminar, UIUC, Urbana, IL USA, 2023.
2. *Probing Relativity in the Next Era of Gravitational Wave Detectors*. JILA Seminar, University of Colorado, Boulder, CO USA, 2020.
3. *Tests of Relativity with Next Generation Detectors*. CGCA Seminar, University of Wisconsin, Milwaukee, WI USA, 2020.
4. *Gravitational Wave Astronomy: Sweeping Through the Spectrum*. TAPIR Seminar, Caltech, Pasadena, CA USA, 2019.
5. *Enhancements and Improved Tests of Relativity with Multi-band GW Observations*. CfA, Harvard, Cambridge, MA USA, 2019.
6. *Multi-band Gravitational Wave Astronomy*. LIGO Seminar, Caltech, Pasadena, CA USA, 2018.
7. *Constraining Beyond-GR Effects Through Gravitational Waves*. Astronomy Lunch talk, University of Wisconsin, Madison, WI USA, 2017.
8. *Gravitational Waves: Searching for Flawed Relativity and Beyond*. Poster at January Board of Trustees Dinner, Caltech, Pasadena, CA USA, 2017.
9. *Modeling the Propagation & Polarization of Gravitational Waves to Test GR*. KICP Lunch talk, University of Chicago, Chicago, IL USA, 2016.
10. *Testing GR with Gravitational Waves*. Science Speaker Series, ERAU, Prescott, AZ USA, 2015.
11. *Beyond Fisher: Testing General Relativity with Gravitational Waves*. LIGO Seminar, Caltech, Pasadena, CA USA, 2015.
12. *Detecting Violations of General Relativity*. Astronomy & Astrophysics Lunch talk, Cornell University, Ithaca, NY USA, 2015.
13. *Testing General Relativity with Gravitational Waves*. Seminar talk, University of Connecticut, Storrs, CT USA, 2015.

14. *Exploring the Potential for Multi-messenger Astronomy with Black Hole-Neutron Star Binaries*. Columbia University, New York, NY USA, 2013.

CONTRIBUTED  
PRESENTATIONS

1. Presented at the 2022 SACNAS National Conference, San Juan, PR.
2. Presented at the 2022 APS April Meeting, New York, NY USA.
3. Presented at the 2022 Pacific Coast Gravity Meeting, UC Davis, CA USA.
4. Presented at the 2021 Pacific Coast Gravity Meeting, virtual (Covid-19).
5. Presented at the 2020 APS April Meeting, virtual (Covid-19).
6. Presented at the 2019 SACNAS National Conference, Honolulu, HI USA.
7. Presented at the 2019 APS April Meeting, Denver, CO USA. Supported by the APS DGRAV Travel Award.
8. Presented at 2018 GWPAW, College Park, MD USA. On behalf of the LVC for *Tests of GR with GW170817*. Supported by the Groce Travel Award.
9. Presented at the 2018 APS April Meeting, Columbus, OH USA. Supported by the APS DAP Travel Award.
10. Presented at the 2018 Pacific Coast Gravity Meeting, Caltech, Pasadena, CA USA.
11. Presented at the 2017 Aspen Center for Physics Winter Conference: *The Dawning Era of Gravitational-Wave Astrophysics*, Aspen, CO USA. Supported by a NSF award.
12. Presented at the 2017 APS April Meeting, Washington, DC USA. Supported by the Groce Travel Award.
13. Presented at the 2016 AISES National Conference, Minneapolis, MN USA.
14. Presented at the 21st International Conference on General Relativity and Gravitation, New York City, NY USA. Supported by the Groce Travel Award.
15. Presented at the Seventh Meeting on CPT and Lorentz Symmetry, Indiana University, Bloomington, IN USA.
16. Presented at 2016 Pacific Coast Gravity Meeting, California State University, Fullerton, CA USA.
17. Presented at 2015 Theoretical Astrophysics in Southern California Meeting, California State University, Fullerton, CA USA.
18. Presented at the 2011 APS April Meeting, Anaheim, CA USA. Supported by the APS Topical Group in Gravitation travel grant.

REFERENCES

Upon request.