

Dr. Joshua R. Smith

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Appointments

- 2018+ Professor of Physics, *California State University Fullerton (CSUF)*
- 2016+ Dan Black Director of Gravitational-Wave Physics and Astronomy, *CSUF*
- 2014–2018 Associate Professor of Physics, *CSUF*
- 2010–2014 Assistant Professor of Physics, *CSUF*
- 2007–2009 Postdoctoral Research Associate in Physics, *Syracuse University*
- 2006–2007 Postdoctoral Fellow in Physics, *Albert Einstein Institute Hannover*

Education

- 2002–2006 Ph.D. Physics (*Dr. rer. nat.*), Leibniz Universität Hannover
 - Thesis: “Formulation of instrument noise analysis techniques and their use in the commissioning of the gravitational wave observatory GEO 600,” Prof. Karsten Danzmann
- 1998–2002 B.Sc. Physics, Syracuse University
 - Thesis: “Thermal noise associated with silicate bonding,” Prof. Peter Saulson

Leadership

- 2012+ Director of the Nicholas and Lee Begovich Center for Gravitational Wave Physics and Astronomy, CSUF
- 2022+ Director of Instruments and Observatories, Cosmic Explorer Project
- 2019–2021 LIGO Scientific Collaboration Program Committee
- 2016–2017 Executive Committee Member, APS Far West Section
- 2011–2015 Chair, Detector Characterization Group, LIGO Scientific Collaboration
- 2011–2015 Executive Committee Member, LIGO Scientific Collaboration
- 2008+ Council Member, LIGO Scientific Collaboration
- 2008–2010 Co-chair, Glitch Working Group, LIGO Scientific Collaboration

Research Interests

Experimental gravitational-wave physics and astronomy; gravitational-wave detector optics; optical interferometry; optical interference coatings; scientific computing and infrastructure.

Awards and Recognition

2017	Orange County's 100 Most Influential, Orange County Register, [link]
2017	American Astronomical Society Bruno Rossi Prize, 1/1000 awardees from LIGO Team, [link]
2017	Princess of Asturias Award for Technical and Scientific Research, 1/1000 awardees from LIGO, [link]
2016	Outstanding Untenured Faculty Member, College of Natural Sciences and Mathematics, CSUF
2016	Orange County's 100 Most Influential, Orange County Register, [link]
2016	Gruber Cosmology Prize, 1/1000 awardees from the LIGO Discovery Team, [link]
2016	Special Breakthrough Prize, 1/1000 awardees from the LIGO Contributors, [link]
2015	Cottrell Scholar, Research Corporation for Science Advancement, [link]
2014	40 Under 40, OC Metro Magazine, [link]
2013	NSF CAREER Award, [link]

Selected Publications

CSUF co-authors are shown in bold and CSUF student co-authors are indicated with an additional asterisk. A complete list is at the end of this document and on [Google Scholar](#).

1. "Observation of Gravitational Waves from a Binary Black Hole Merger," B.P. Abbott et al. (LIGO Scientific Collaboration and Virgo Collaboration), *Phys. Rev. Lett.* **116** 061102 (2016). [\[PRL\]](#), [\[arXiv\]](#).
2. "A hierarchical method for vetoing noise transients in gravitational-wave detectors," **J. R. Smith, T. Abbott***, E. Hirose, N. Leroy, D. MacLeod, J. McIver, P. Saulson, P. Shawhan, *Class. Quantum Grav.* **28** 235005 (2011). [\[CQG\]](#), [\[arXiv\]](#).
3. "Gravitational-wave physics with Cosmic Explorer: Limits to low-frequency sensitivity," ED Hall, K Kuns, **JR Smith**, Y Bai, C Wipf, S Biscans, RX Adhikari, K Arai, S Ballmer, L Barsotti, Y Chen, M Evans, P Fritschel, J Harms, B Kamai, JG Rollins, D Shoemaker, BJJ Slagmolen, R Weiss, and H Yamamoto, *Phys. Rev. D* 103, 122004 (2021). [\[PRD\]](#), [\[arXiv\]](#)
4. "The path to the enhanced and advanced LIGO gravitational-wave detectors," **J.R. Smith** for the LIGO Scientific Collaboration, *Class. Quantum Grav.* **26** 114013 (2009). [\[CQG\]](#). A Classical and Quantum Gravity [Highlight](#) of 2009-2010.
5. "A Horizon Study for Cosmic Explorer: Science, Observatories, and Community," Matthew Evans, Rana X Adhikari, Chaitanya Afle, Stefan W. Ballmer, Sylvia Biscoveanu, Ssohrab Borhanian, Duncan A. Brown, Yanbei Chen, Robert Eisenstein, **Alexandra Gruson***, Anuradha Gupta, Evan D. Hall, Rachael Huxford, Brittany Kamai, Rahul Kashyap, Jeff S. Kissel, Kevin Kuns, **Philippe Landry**, Amber Lenon, **Geoffrey Lovelace**, Lee McCuller, Ken K. Y. Ng, Alexander H. Nitz, **Jocelyn Read**, B. S. Sathyaprakash, David H. Shoemaker, Bram J. J. Slagmolen, **Joshua R. Smith**, Varun Srivastava, Ling Sun, Salvatore Vitale, Rainer Weiss, Report number: CE-P2100003, 2021. [\[arXiv\]](#)
6. "Identifying correlations between LIGO's astronomical range and auxiliary sensors using lasso regression," **M. Walker**, A.F. Agnew, **J. Bidler***, A.P. Lundgren, **A. Macedo***, D. Macleod, T.J. Massinger, O. Patane*, **J.R. Smith**, *Class. Quantum Grav.* **35** 225002 (2018). [\[CQG\]](#), [\[arXiv\]](#).

7. “Imaging Scatterometer for Observing In-Situ Changes to Optical Coatings During Air Annealing,” **Michael Rezac***, **Daniel Martinez***, **Amy Gleckl***, **Joshua R. Smith**, *Appl. Opt.* 62, B97-B103 (2023). [[AO](#)], [[arXiv](#)].
8. “In-vacuum measurements of optical scatter versus annealing temperature for amorphous Ta₂O₅ and TiO₂:Ta₂O₅ thin films,” **Elenna M. Capote***, **Amy Gleckl***, **Jazlyn Guerrero***, **Michael Rezac***, **Robert Wright**, and **Joshua R. Smith**, *J. Opt. Soc. Am. A* 38, 534-541 (2021). [[JOSA A](#)], [[arXiv](#)]
9. “LigoDV-web: Providing easy, secure and universal access to a large distributed scientific data store for the LIGO Scientific Collaboration,” **J.S. Areeda**, **J.R. Smith**, A.P. Lundgren, E. Maros, D.M. Macleod, J. Zweizig, *Astronomy and Computing* 18 27–34 (2017). [[ASCOM](#)], [[arXiv](#)].
10. “Optical scatter of quantum noise filter cavity optics,” **D. Vander-Hyde***, C. Amra, M. Lequime, **F. Magaña-Sandoval**, **J.R. Smith**, *Class. Quantum Grav.* 32 135019 (2015). [[CQG](#)], [[arXiv](#)].
11. **C. Padilla***, P. Fritschel, **F. Magaña-Sandoval***, **E. Muniz***, **J.R. Smith**, L. Zhang. “Low scatter and ultra-low reflectivity measured in a fused silica window.” *Applied Optics*, 53 1315-1321 (2014). Included in Spotlight on Optics. [[AO](#)], [[arXiv](#)].
12. “Large-angle scattered light measurements for quantum-noise filter cavity design studies,” **Fabian Magaña-Sandoval***, Rana X. Adhikari, Valera Frolov, Jan Harms, **Jacqueline Lee***, Shannon Sankar, Peter R. Saulson, and **Joshua R. Smith**, *JOSA A*, Vol. 29, Issue 8, pp. 1722-1727 (2012). [[JOSAA](#)], [[arXiv](#)].
13. “Gravity Spy: Integrating Advanced LIGO Detector Characterization, Machine Learning, and Citizen Science,” M Zevin, S Coughlin, S Bahaadini, E Besler, N Rohani, S Allen, M Cabero, K Crowston, A K Katsaggelos, S L Larson, T K Lee, C Lintott, T B Littenberg, A Lundgren, C Oesterlund, **J R Smith**, L Trouille, V Kalogera, *Class. Quantum Grav.* 34 6 (2017). [[CQG](#)], [[arXiv](#)].
14. “Measurement and simulation of laser power noise in GEO600,” **J.R. Smith**, J. Degallaix, A. Freise, H. Grote, M. Hewitson, S. Hild, H. Lück, K.A. Strain and B. Willke, *Class. Quantum Grav.* 25 035003-035015 (2008). [[CQG](#)].
15. “Linear projection of technical noise for interferometric gravitational-wave detectors,” **J.R. Smith**, P. Ajith, H. Grote, M. Hewitson, S. Hild, H. Lück, K.A. Strain, B. Willke, J. Hough and K. Danzmann, *Class. Quantum Grav.* 23 527-537, (2006). [[CQG](#)].
16. “Feedforward correction of mirror misalignment fluctuations for the GEO 600 gravitational wave detector,” **J.R. Smith**, H. Grote, M. Hewitson, S. Hild, H. Lück, M. Parsons, K.A. Strain and B. Willke, *Class. Quantum Grav.* 22 3093-3104, (2005). [[CQG](#)].
17. “Commissioning, characterization, and operation of the dual-recycled GEO 600,” **J.R. Smith** et al., *Class. Quantum Grav.* 21 S1737-S1745, (2004). [[CQG](#)].
18. “Mechanical loss associated with silicate bonding of fused silica,” **J.R. Smith**, G.M. Harry, J.C. Betzwieser, A.M. Gretarsson, D.A. Guild, S.E. Kittelberger, M.J. Mortonson, S.D. Penn and P.R. Saulson, *Class. Quantum Grav.* 20 5039-5047, (2003). [[CQG](#)]. A Classical and Quantum Gravity [Highlight](#) of 2003-2004.

Book chapters:

19. Third-Generation Gravitational-Wave Observatories. Lück, H, **Smith J.**, Punturo M. Eds. Bambi C., Katsanevas S., Kokkotas K.D. In: Handbook of Gravitational Wave Astronomy. Springer, Singapore. 2021. [[Springer](#)]
20. Chapter 14: Diagnostic methods for gravitational-wave detectors. J. McIver, T.J. Massinger, F. Robinet, **J. Smith, M. Walker**. In: Advanced Interferometric Gravitational-Wave Detectors. P. Saulson, D. Reitze, H. Grote. (eds) World Scientific. 2019. [[WS](#)]
21. Chapter 11: “Optical Scatter.” In: Optical Coatings and Thermal Noise in Precision Measurement. **Joshua Smith** and Michael Zucker. Eds. G. M. Harry, T. Bodiya, R. DeSalvo. Cambridge: Cambridge University Press, 2012. Print. ISBN:9781107003385. [[CUP](#)].

Awarded External Grants

1. (PI) National Science Foundation (NSF), EES-2332503, “Planning: CREST Center for Gravitational-Wave Physics and Astronomy at California State University, Fullerton,” \$200,000, 2023-2025. [[link](#)]
2. (PI) NSF-PHY-2308985, “Collaborative Research: Identifying and Evaluating Sites for Cosmic Explorer,” \$904,704, 2023-2026. [[link](#)]
3. (PI) NSF-PHY-2207998, “RUI: Advancing gravitational-wave optics to further explore the cosmos,” \$355,683, 2022-2025. [[link](#)]
4. (Subcontractor, CSUF PI), Department of Defense SBIR topic AF221-0005, Contract Number: FA9451-22-P-A007, “Computer Vision Enhanced Reflectance Analyzer (CoVERA),” \$4,482, 2022-2023
5. (Co-PI) NSF-AST-2219109, “The CSUF-led partnership for inclusion of underrepresented groups in gravitational-wave astronomy,” \$1,180,214, 2022-2027. [[link](#)]
6. (Senior Personnel) NSF-PHY-2110594, “Data Handling and Analysis Infrastructure for Gravitational-wave Astronomy,” \$753,324, 2021-2025. [[link](#)]
7. (PI) NSF-PHY-2019184 “MRI: Acquisition of a Cryogenic Testbed for Advancing Gravitational-Wave Observation Technology,” \$159,934, 2020-2023. [[link](#)]
8. (PI) NSF-PHY-1807069, “RUI: Improving LIGO optics and data quality to increase the rate and accuracy of gravitational-wave observations,” \$299,538, 2018-2021. [[link](#)]
9. (Co-PI) NSF-PHY-1836734, “Collaborative Research: The Next Generation of Gravitational Wave Detectors,” \$211,283, 2018-2021. [[link](#)]
10. (Co-PI) NSF-PHY-1708035, “Data Handling and Analysis Infrastructure for Gravitational-wave Astronomy,” \$634,196, 2017-2021. [[link](#)]
11. (Co-PI) NSF-PHY-1708035, “Collaborative Research: LSC Center for Coatings Research,” \$152,650, 2017-2020. [[link](#)]
12. (Co-PI) NSF-AST-1559694, “Catching a new wave: the CSUF-Syracuse partnership for inclusion of underrepresented groups in gravitational-wave astronomy,” \$937,368, 2016-2021. [[link](#)]
13. (Co-PI) NSF-IIS-1547880, “INSPIRE: Glitch Zoo: Teaming Citizen Science with Machine Learning to Deepen LIGO’s View of the Cosmos,” \$67,500, 2015-2018. [[link](#)]

14. (Co-PI) NSF-PHY-1429873, “MRI: Acquisition of a high-performance computer cluster for gravitational-wave astronomy with Advanced LIGO,” \$119,791, 2014-2017. [\[link\]](#)
15. (PI) NSF-PHY-1255650, “CAREER: Gravitational-Wave Detector Characterization and Science Education in the Advanced LIGO Era,” \$450,000, 2013-2018. [\[link\]](#)
16. (Senior Personnel) NSF-PHY-1104371, “Data Handling and Analysis Infrastructure for Advanced LIGO and Beyond,” \$675,000 CSUF subcontract, 2012-2017. [\[link\]](#)
17. (Senior Personnel) NSF-PHY-0600953, “Enabling Gravitational-Wave Astronomy on the LIGO Data Grid,” \$125,000 CSUF subcontract, 2011-2012. [\[link\]](#)
18. (PI) NSF-PHY-0970147, “RUI: LIGO detector characterization and optical scatter research,” \$240,000, 2010-2013. [\[link\]](#)
19. (PI) Research Corporation for Science Advancement, Cottrell College Science Award # 19838, “Extending the astronomical reach of gravitational-wave detectors with all-reflective interferometry,” \$35,000, 2010-2012

Awarded Internal Grants

1. (Co-PI) Faculty Enhancement and Instructional Development Grant, “Enhancing student learning with improved manuals for advanced physics laboratory classes,” with Greg Childers, \$5,247, 2012-2013
2. (PI) CSUF Office of the Associate Vice President for Graduate Programs and Research, Center and Institute Planning and Expansion Program, “Three-year plan for funding and expansion of the Gravitational-Wave Physics and Astronomy Center (GW PAC),” \$15,000, 2011-2012

Technology Transfers

- 2015 A. Avila Alvarez, J. Rocha, L. Hargreaves, J. Smith, “InstruTech Hornet 402 Vacuum Gauge Control VI,” [\[NI.com\]](#)
- 2015 A. Avila Alvarez, E. Muniz, J. Rocha, J. Smith, “Driver VIs for Innolight Mephisto S Laser Line,” [\[NI.com\]](#)

Courses Taught

ASTR101: *Introduction to Astronomy*; ASTR101L: *Introduction to Astronomy Lab*; PHYS120: *Introduction to Astronomy*; PHYS225: *Calculus-based Fundamental Physics: Mechanics*; PHYS300: *Mathematical Methods for Physics*; PHYS315: *Computational Physics*; PHYS380: *Methods Experimental Phys*; PHYS411: *Modern Optics*; PHYS455: *Introduction to Quantum Physics*; PHYS481: *Experimental Physics*; PHYS482: *Modern Optics Laboratory*; PHYS520: *Graduate Mechanics*; PHYS581: *Graduate Laboratory*.

Professional Membership

Cosmic Explorer Project (2019+); Cosmic Explorer Consortium (2019+); Optica (2015+); Society for Advancement of Chicanos and Native Americans in Science (SACNAS) (2011+); American Astronomical Society (2011+); American Physical Society (APS) (2007+); LIGO Scientific Collaboration (2000+);

PhD Examiner

2023	Janis Wöhlens, Leibniz Universität Hannover, Germany
2022	Philip Koch, Leibniz Universität Hannover, Germany
2018	Miriam Cabero Müller, Leibniz Universität Hannover, Germany
2017	Guillermo Valdes, University of Texas Rio Grande Valley, University of Texas at San Antonio
2015	Robert Stone, University of Texas Rio Grande Valley, University of Texas at San Antonio

Service

Scientific and Academic Community: Physics Committee of Visitors, National Science Foundation (2019); Scientific Organizing Committee, Dawn VII meeting, University of British Columbia (2024); Six-year External Review Committee (SERC), Montclair State University, Department of Physics and Astronomy (2022); Panelist, Ad Hoc Reviewer, National Science Foundation (multiple years); Grant Reviewer, NASA (multiple years); Advisory panelist, Classical and Quantum Gravity (2018–2021); Chair, STEM Symposium, SACNAS NDiSTEM Conference (2021); Scientific Organizing Committee, Sixth Physics and Astrophysics at the Extreme (PAX) meeting, Cascina, Italy (2019); Referee, Optical Society of America Publishing (*Optics Letters*, *Applied Optics*, *JOSA A*) (2012+); Referee, Institute of Physics Publishing (*Classical and Quantum Gravity*) (2010+);

Gravitational-wave collaborations: Co-Chair, LSC Speaker’s Board (2017–2020); LSC MOU Review Committee (2011–2015); Advanced LIGO Acceptance Review (2014–2015); Gingin High Power Test Facility Advisory Board (2012); Enhanced LIGO Calibration Review (2010); Advanced LIGO Data Acquisition System Design Review (2010);

CSUF: Strategic Plan Development Committee (2023–2024); Search Committee for Dean of the College of Natural Sciences and Mathematics (2015–2016); Radiation Safety Committee (2011–2016); Student Research Advisory Committee (2011–2012);

College of NSM: Program Performance Review, CSUF Department of Mathematics (2019); Safety Committee (2010–2013); Faculty Awards Committee (2016,2017);

Physics department: Faculty Search Committee (2013, 2015, 2024); Chair, Department Personnel Committee (2016, 2021, 2022); Department Personnel Committee (2019, 2020, 2024); Department Standards Committee (2022); Program Performance Review Committee, CSUF Department of Physics (2015, 2022); Faculty Advisor, Physics Club (2011–2016); Curriculum Committee (2010–2011);

Invited Presentations

2025	“ET/CE-what we hope to build, and what we could optimistically do by 2040,” Ten Years to LISA Workshop, NASA Jet Propulsion Laboratory, CA
2025	“Gravitational Waves, LIGO, and Cosmic Explorer,” with Geoffrey Lovelace, Morgan Community College, Fort Morgan, CO, Online
2024	“Measuring waves of gravity from across the universe with LIGO and Cosmic Explorer,” with Michael Landry, Southern Utah University, Cedar City, UT
2024	“Measuring waves of gravity from across the universe with LIGO and Cosmic Explorer,” with Michael Landry, BYU, Provo, UT

- 2024 “Measuring waves of gravity from across the universe with LIGO and Cosmic Explorer,” CSUF Osher Lifelong Learning Institute Science Series, Fullerton, CA
- 2024 “Measuring waves of gravity from across the universe with LIGO and Cosmic Explorer,” The Aerospace Corporation, Astronomy Club Event, El Segundo, CA
- 2024 “Status of Cosmic Explorer Location Evaluation,” with Kathyryne Daniel, Second Cosmic Explorer Symposium, Zoom
- 2024 “Cosmic Explorer: a Next Generation Gravitational-Wave Observatory,” with Kathyryne Daniel, Los Alamos National Lab P/T Colloquium, Los Alamos, NM
- 2024 “Cosmic Explorer: a Next Generation Gravitational-Wave Observatory,” with Kathyryne Daniel, The University of New Mexico Physics Colloquium, Albuquerque, NM
- 2024 “Measuring waves of gravity from across the universe with LIGO and Cosmic Explorer,” University of California Riverside, Riverside, CA
- 2023 “Gravitational-Wave Physics and Astronomy,” N3AS Summer School, Santa Cruz, CA
- 2022 “Dark Universe Songs: Gravitational Waves from Black Holes and Neutron Stars,” with Geoffrey Lovelace and Jocelyn Read, Fullerton Community Center, Fullerton, CA
- 2022 “Measuring Waves of Gravity from Across the Universe with Laser Interferometry,” Physics Program Colloquium, Bard College, Annondale on Hudson, NY
- 2021 “Third generation ground-based gravitational-wave observatories: detector technology and scientific themes,” Miami 2021 topical physics conference (Virtual)
- 2021 “Cosmic Explorer Science and Project,” 6th Dawn Meeting on Global Strategies for Gravitational Wave Astronomy (Virtual)
- 2019 “The Next Generation of Earthbound Laser Interferometric Gravitational-Wave Detectors,” Gravitational Waves in the Adirondacks, Blue Mountain Lake, NY
- 2019 “Apparatus to Measure Optical Scatter of Coatings Versus Annealing Temperature,” Optical Interference Coatings 2019, Optical Society of America, Santa Ana Pueblo, NM
- 2019 “Using optics and precision metrology to measure black holes and neutron stars across the universe,” Ventura section of Optical Society of America, Simi Valley, CA
- 2018 “Observing the universe with waves of gravity,” with Geoffrey Lovelace, Fullerton Public Library
- 2018 “Observing black holes and neutron stars from across the universe with gravity,” Physics Department Colloquium, Syracuse University, Syracuse, NY
- 2017 “Undergraduate research helping to observe black hole mergers from across the universe,” 2017 CSU STEM Conference, Los Angeles, CA
- 2017 “Using precision optics and metrology to measure black hole mergers from across the universe with LIGO,” Optical Society of America Optical Design and Fabrication Congress, Denver, CO
- 2017 “Observing Black Holes From Across the Universe,” Public Lecture at the Fullerton Community Center, Fullerton, CA
- 2017 “The impact of philanthropic support for student engagement in gravitational-wave science,” 2017 Ontiveros Legacy Society Recognition Luncheon, CSU Fullerton, Fullerton, CA
- 2016 “The discovery of gravitational waves from merging black holes,” STEM Seminar, Cypress College, Cypress, CA

- 2016 “Observing black hole mergers from across the universe with LIGO,” Physics Colloquium, CSU Northridge, Northridge, CA
- 2016 “Observing black hole mergers from across the universe with LIGO,” Astrophysics Seminar, UC Irvine, Irvine, CA
- 2016 “Using optics and precision metrology in LIGO to measure black hole mergers from across the universe,” 2nd Annual Photonics Society Banquet, UC Santa Barbara, Santa Barbara, CA
- 2016 “Using optics and precision metrology in LIGO to measure black hole mergers from across the universe,” Optical Society of Southern California Meeting, Fullerton, CA
- 2016 “Current and future gravitational-wave discoveries with the Laser Interferometer Gravitational-Wave Observatory, LIGO,” Cal State Long Beach Colloquium, Long Beach, CA
- 2016 “Current and future gravitational-wave discoveries with LIGO,” SLAC experimental seminar, Stanford Linear Accelerator, Menlo Park, CA
- 2015 “Einstein’s Gravitational Waves - Future Discoveries,” STEM event, Santiago Canyon College, Orange, CA
- 2014 “Gravitational-Wave Astronomy with LIGO,” Physics Colloquium, CSU Fresno, Fresno, CA
- 2014 “Einstein’s Gravitational Waves,” with Jocelyn Read and Geoffrey Lovelace, Fullerton Public Library
- 2014 “Exploring the gravitational-wave sky with LIGO,” California State University Northridge, Physics and Astronomy Colloquium, Northridge, CA
- 2013 “Detector characterization to prepare for the first gravitational-wave detections,” Gravitational Wave Physics and Astronomy Workshop, Pune, India
- 2013 “Gravitational-Wave Astronomy with LIGO: Opening a New Window on the Universe,” Orange County Astronomers General Meeting, Chapman University, Orange CA
- 2013 “Research in Gravitational-Wave Astronomy and Physics at Cal State Fullerton,” Introductory remarks at Discover STEM Event, Cypress College, Cypress, CA
- 2013 “Gravitational-Wave Astronomy with LIGO: Opening a New Window on the Universe,” CSUF Osher Lifelong Learning Institute Science Series, Fullerton, CA
- 2012 “Gravitational-Wave Astronomy with LIGO,” Cal Poly Pomona Physics and Astronomy Seminar, Pomona, CA
- 2012 “Fighting Noise in the LIGO Interferometers,” 2012 SACNAS National Conference, Scientific Symposia Session, Seattle, WA
- 2012 “Venus, a nice place to live?,” public lecture, Fullerton Arboretum Venus Transit Viewing, Fullerton, CA
- 2012 “Gravitational-wave astronomy with LIGO and Virgo,” UC Irvine High-Energy Physics Seminar, Irvine, CA
- 2011 “Exploring the transient universe with gravitational waves,” American Physical Society April Meeting, Anaheim, CA
- 2010 “Extending the range of gravitational-wave astronomy,” Colloquium, Louisiana State University, Baton Rouge, LA
- 2010 “Searching for gravitational-wave bursts with LIGO, GEO 600 and Virgo,” 19th International Conference on General Relativity and Gravitation (GR19), Mexico City, Mexico
- 2009 “Toward Gravitational-Wave Detection and Astronomy With LIGO,” Colloquium, Syracuse University, Syracuse, NY

2008 “Toward Gravitational-Wave Detection and Astronomy With LIGO,” Colloquium, California State University, Fullerton, CA

All Publications

Within each year, papers are ordered by the degree of CSUF co-author contributions, with the papers most directly contributed to listed first.

2025

1. “Criteria for identifying and evaluating locations that could potentially host the Cosmic Explorer observatories,” Kathryn J. Daniel, Joshua R. Smith, Stefan Ballmer, Warren Bristol, Jennifer C. Driggers, Anamaria Effler, Matthew Evans, Joseph Hoover, Kevin Kuns, Michael Landry, Geoffrey Lovelace, Chris Lukinbeal, Vuk Mandic, Kiet Pham, Jocelyn Read, Joshua B. Russell, François Schiettekatte, Robert M. S. Schofield, Christopher A. Scholz, David H. Shoemaker, Piper Sledge, Amber Strunk, *Rev. Sci. Instrum.* 1 January 2025; 96 (1): 014502. [\[RSI\]](#).

2024

2. “Ar transport and blister growth kinetics in titania-doped germania-based optical coatings,” Émile Lalande, Aaron Davenport, Lory Marchand, Ashot Markosyan, **Daniel Martinez***, Annalisa Paolone, **Michael Rezac***, Marco Bazzan, Martin Chicoine, Julien L Colaux, Matthieu Coulon, Martin M Fejer, Alexandre W Lussier, Ettore Majorana, Ludvik Martinu, Carmen Menoni, Christophe Michel, Fulvio Ricci, François Schiettekatte, Nikita Shcheblanov, **Joshua R Smith**, Julien Teillon, Guy Terwagne and Gabriele Vajente, *Class. Quantum Grav.* 41 115013 (2024). [\[CQG\]](#).
3. “Multi-messenger astrophysics of black holes and neutron stars as probed by ground-based gravitational wave detectors: from present to future,” Alessandra Corsi, Lisa Barsotti, Emanuele Berti, Matthew Evans, Ish Gupta, Konstantinos Kritos, Kevin Kuns, Alexander H. Nitz, Benjamin J. Owen, Binod Rajbhandari, Jocelyn Read, Bangalore S. Sathyaprakash, David H. Shoemaker, **Joshua R. Smith** and Salvatore Vitale, *Front. Astron. Space Sci.*, 22 May 2024, Sec. Cosmology, Volume 11 - 2024. [doi](#), [arXiv](#).
4. “Gravity Spy: Lessons Learned and a Path Forward,” Michael Zevin, Corey B Jackson, Zoheyr Doctor, Yunan Wu, Carsten Østerlund, L Clifton Johnson, Christopher PL Berry, Kevin Crowston, Scott B Coughlin, Vicky Kalogera, Sharan Banagiri, Derek Davis, Jane Glanzer, Renzhi Hao, Aggelos K Katsaggelos, **Oli Patane***, Jennifer Sanchez, **Joshua Smith**, Siddharth Soni, Laura Trouille, Marissa Walker, Irina Aerith, Wilfried Domainko, Victor-Georges Baranowski, Gerhard Niklasch, Barbara Téglás, *The European Physical Journal Plus*, 139, 100 (2024). [EPJP](#), [\[arXiv\]](#).
5. “Characterizing Gravitational Wave Detector Networks: From A# to Cosmic Explorer,” Ish Gupta, Chaitanya Afle, KG Arun, Ananya Bandopadhyay, Masha Baryakhtar, Sylvia Biscoveanu, Ssohrab Borhanian, Floor Broekgaarden, Alessandra Corsi, Arnab Dhani, Matthew Evans, Evan D Hall, Otto A Hannuksela, Keisi Kacanja, Rahul Kashyap, Sanika Khadkikar, Kevin Kuns, Tjonnie GF Li, Andrew L Miller, Alexander Harvey Nitz, Benjamin J Owen, Cristiano Palomba, Anthony Pearce, Hemantakumar Phurailatpam, Binod Rajbhandari, Jocelyn Read, Joseph D Romano, Bangalore S Sathyaprakash, David H Shoemaker, Divya Singh, Salvatore Vitale, Lisa Barsotti, Emanuele Berti, Craig Cahillane, Hsin-Yu Chen, Peter Fritschel, Carl-Johan Haster, Philippe Landry, Geoffrey Lovelace, David McClelland, Bram JJ Slagmolen, **Joshua Smith**, Marcelle Soares-Santos, Ling Sun, David Tanner, Hiro Yamamoto, Michael Zucker, Accepted by *Class. Quantum Grav.* 2024. [arXiv](#).
6. “GWTC-2.1: Deep extended catalog of compact binary coalescences observed by LIGO and Virgo during the first half of the third observing run,” R. Abbott et al. (The LIGO Scientific Collaboration and the Virgo Collaboration), *Phys. Rev. D* 109, 02200 (2024). [\[PRD\]](#), [\[arXiv\]](#).

2023

7. “Imaging Scatterometer for Observing In-Situ Changes to Optical Coatings During Air Annealing,” **Michael Rezac***, **Daniel Martinez***, **Amy Gleckl***, **Joshua R. Smith**, Appl. Opt. 62, B97-B103 (2023). [[AO](#)], [[arXiv](#)].
8. “Titania Mixed with Silica: A Low Thermal-Noise Coating Material for Gravitational-Wave Detectors,” Graeme I. McGhee, Viola Spagnuolo, Nicholas Demos, Simon C. Tait, Peter G. Murray, Martin Chicoine, Paul Dabadie, Slawek Gras, Jim Hough, Guido Alex Iandolo, Ross Johnston, Valérie Martinez, **Oli Patane***, Sheila Rowan, François Schiettekatte, **Joshua R. Smith**, Lukas Terkowski, Liyuan Zhang, Matthew Evans, Iain W. Martin, and Jessica Steinlechner, Phys. Rev. Lett. 131, 171401 (2023). [[PRL](#)].
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