

JUSTIN CHRISTOPHER FENG

CURRICULUM VITAE

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CENTRA, Instituto Superior Técnico - U. Lisboa, Av. Rovisco Pais 1, 1049-001 Lisboa, PORTUGAL

APPOINTMENTS

Postdoctoral Researcher

CENTRA, Instituto Superior Técnico (University of Lisbon)

Feb 2019 – Present

Adjunct Faculty (Joint)

St. Edward's University

Aug 2018 – Dec 2018

Research Affiliate - Postdoctoral Fellow

The University of Texas at Austin

Sep 2017 – Jan 2019

Graduate Research Assistant

The University of Texas at Austin

Jun – Aug 2016, Jun – Aug 2017

Assistant Instructor

The University of Texas at Austin

Aug 2011 – May 2017

Teaching Assistant

The University of Texas at Austin

Aug 2009 – Jul 2011, Spring 2015

Undergraduate Research Assistant

Cooray group, University of California, Irvine

Jun – Aug 2007, Jun – Aug 2008

RESEARCH STAYS

CGP, The University of Texas at Austin, 9 Apr – 23 Apr 2022

DIME, University of Genoa, 20 Oct – 4 Nov 2021

The University of Texas at Austin, 1 Mar – 12 Mar 2020

YITP, Kyoto University, 30 Nov – 11 Dec 2019

Okinawa Institute for Science and Technology, 12 Nov – 15 Nov 2017

EDUCATION

Doctor of Philosophy in Physics

The University of Texas at Austin

Sep 2009 – Dec 2017

Bachelor of Science in Physics

University of California, Irvine

Sep 2004 – Jun 2009

ACTIVITIES

- Member
International Society on General Relativity and Gravitation (ISGRG)
- Referee
Classical and Quantum Gravity
European Physical Journal Plus
- Organizing committee member
XIII Black Holes Workshop, Dec 2020
Lisbon, PT
- Chair & Organizer
CENTRA seminar, 2019-2021, Lisbon, PT
- Speaker
Contributed 9 seminar talks, 7 conference/workshop talks, 8 pedagogical talks

SKILLS

Software

Mathematica (xAct), SciML libraries, Linux

Programming Languages

Julia, FORTRAN, C, LaTeX, HTML, bash

PUBLICATIONS

- [1] Justin C. Feng, Shinji Mukohyama, and Sante Carloni. Junction conditions and sharp gradients in generalized coupling theories. *Phys. Rev. D*, 105:104036, May 2022.
- [2] Justin C. Feng, Filip Hejda, and Sante Carloni. Relativistic location algorithm in curved spacetime. Jan 2022. [arxiv:2201.01774](https://arxiv.org/abs/2201.01774).
- [3] Justin C. Feng and Sumanta Chakraborty. Weiss variation for general boundaries. Nov 2021. [arxiv:2111.06897](https://arxiv.org/abs/2111.06897).
- [4] Justin C. Feng, José P. S. Lemos, and Richard A. Matzner. Self-collision of a portal wormhole. *Phys. Rev. D*, 103:124037, Jun 2021.
- [5] Miguel Duarte, Justin Feng, Edgar Gasperín, and David Hilditch. High order asymptotic expansions of a good–bad–ugly wave equation. *Class. Quantum Gravity*, 38(14):145015, Jun 2021.
- [6] Justin C. Feng, Shinji Mukohyama, and Sante Carloni. Minimal exponential measure model in the post-Newtonian limit. *Phys. Rev. D*, 103:084055, Apr 2021.
- [7] Sumanta Chakraborty and Justin C. Feng. Perturbations of the almost Killing equation and their implications. *Phys. Rev. D*, 103:084020, Apr 2021.
- [8] Chinmoy Bhattacharjee and Justin C. Feng. On Beltrami states near black hole event horizon. *Phys. Plasmas*, 27(7):072901, 2020.
- [9] Justin C. Feng and Sante Carloni. New class of generalized coupling theories. *Phys. Rev. D*, 101:064002, Mar 2020.
- [10] Justin C. Feng. Note on gravity at the boundary of an AdS vacuum. Feb 2020. [arxiv:2002.08342](https://arxiv.org/abs/2002.08342).
- [11] Justin C. Feng, Edgar Gasperín, and Jarrod L. Williams. Almost-Killing equation: Stability, hyperbolicity, and black hole Gauss law. *Phys. Rev. D*, 100:124034, Dec 2019.
- [12] Chinmoy Bhattacharjee, Justin C. Feng, and S. M. Mahajan. Black hole in a superconducting plasma. *Phys. Rev. D*, 99:024027, Jan 2019.
- [13] Justin C. Feng. Some globally conserved currents from generalized Killing vectors and scalar test fields. *Phys. Rev. D*, 98:104035, Nov 2018.
- [14] Chinmoy Bhattacharjee, Justin C. Feng, and David J Stark. Surveying the implications of generalized vortical dynamics in curved spacetime. *Mon. Notices Royal Astron. Soc.*, page sty2277, 2018.
- [15] Ignazio Ciufolini, Richard A. Matzner, Justin C. Feng, Antonio Paolozzi, David P. Rubincam, Erricos C. Pavlis, John C. Ries, Giampiero Sindoni, and Claudio Paris. A new laser-ranged satellite for General Relativity and space geodesy: IV. Thermal drag and the LARES 2 space experiment. *Eur. Phys. J. Plus*, 133(8):333, Aug 2018.
- [16] Justin C. Feng. Volume average regularization for the Wheeler-DeWitt equation. *Phys. Rev. D*, 98:026024, Jul 2018.
- [17] Justin Feng, Mark Baumann, Bryton Hall, Joel Doss, Lucas Spencer, and Richard Matzner. PoMiN: A Post-Minkowskian N -body Solver. *Astrophys. J.*, 859(2):130, 2018.
- [18] Justin C. Feng and Richard A. Matzner. From path integrals to the Wheeler-DeWitt equation: Time evolution in space-times with a spatial boundary. *Phys. Rev. D*, 96:106005, Nov 2017.
- [19] Justin C. Feng and Richard A. Matzner. The Weiss variation of the gravitational action. *Gen. Relativ. Gravit.*, 50(8):99, Jul 2018.
- [20] Justin Christopher Feng. *Temporal insights from the end of space*. PhD thesis, 2017.

Publicly Available Codes

- [1] Justin C. Feng, Filip Hejda, and Sante Carloni. [justincfeng/squirrel.jl](https://github.com/justincfeng/squirrel.jl), Jan 2022. doi:10.5281/zenodo.5850992
- [2] Justin C. Feng, Filip Hejda, and Sante Carloni. [justincfeng/cereal.jl](https://github.com/justincfeng/cereal.jl), Jan 2022. doi:10.5281/zenodo.5848833
- [3] Justin C. Feng, Mark Baumann, Bryton Hall, Joel Doss, Lucas Spencer, and Richard Matzner. [justincfeng/pomin](https://github.com/justincfeng/pomin): v1.1.0, Dec 2018. doi:10.5281/zenodo.2224584

Notes and Misc. Articles

- [1] Justin C. Feng. *Self-collision of a portal wormhole*, Wolfram Community post, staff picks (2021). <https://community.wolfram.com/groups/-/m/t/2286081>
- [2] Justin C. Feng. *The Poor Man's Introduction to Tensors* (2017). https://justincfeng.github.io/Tensors_Poor_Man.pdf