

# 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

- Memberships
  - International Society on General Relativity and Gravitation (ISGRG)
  - Sociedade Portuguesa de Relatividade e Gravitação (SPRG)
  - International Society for Quantum Gravity (ISQG)
  - LISA Consortium Associate Member
- 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, 8 conference/workshop talks, 8 pedagogical talks

## SKILLS

### Software

Mathematica (xAct), SciML libraries, Linux

### Programming Languages

Julia, FORTRAN, C, LaTeX, HTML, bash

## PUBLICATIONS

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- [1] Miguel Duarte, Edgar Gasperín, Justin C. Feng, and David Hilditch. Regularizing Dual-Frame Generalized Harmonic Gauge at Null Infinity. 6 2022. arxiv:2206.13661.
- [2] Miguel Duarte, Justin C. Feng, Edgar Gasperin, and David Hilditch. Peeling in Generalized Harmonic Gauge. 5 2022. arxiv:2205.09405.
- [3] Justin C. Feng, Shinji Mukohyama, and Sante Carloni. Junction conditions and sharp gradients in generalized coupling theories. *Phys. Rev. D*, 105:104036, May 2022.
- [4] Justin C. Feng, Filip Hejda, and Sante Carloni. Relativistic location algorithm in curved spacetime. Jan 2022. *To appear in Phys. Rev. D*, arxiv:2201.01774.
- [5] Justin C. Feng and Sumanta Chakraborty. Weiss variation for general boundaries. *Gen. Relativ. Gravit.*, 54(67), Jul 2022.
- [6] Justin C. Feng, José P. S. Lemos, and Richard A. Matzner. Self-collision of a portal wormhole. *Phys. Rev. D*, 103:124037, Jun 2021.
- [7] 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.
- [8] Justin C. Feng, Shinji Mukohyama, and Sante Carloni. Minimal exponential measure model in the post-Newtonian limit. *Phys. Rev. D*, 103:084055, Apr 2021.
- [9] Sumanta Chakraborty and Justin C. Feng. Perturbations of the almost Killing equation and their implications. *Phys. Rev. D*, 103:084020, Apr 2021.
- [10] Chinmoy Bhattacharjee and Justin C. Feng. On Beltrami states near black hole event horizon. *Phys. Plasmas*, 27(7):072901, 2020.
- [11] Justin C. Feng and Sante Carloni. New class of generalized coupling theories. *Phys. Rev. D*, 101:064002, Mar 2020.
- [12] Justin C. Feng. Note on gravity at the boundary of an AdS vacuum. Feb 2020. arxiv:2002.08342.
- [13] 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.
- [14] Chinmoy Bhattacharjee, Justin C. Feng, and S. M. Mahajan. Black hole in a superconducting plasma. *Phys. Rev. D*, 99:024027, Jan 2019.
- [15] Justin C. Feng. Some globally conserved currents from generalized Killing vectors and scalar test fields. *Phys. Rev. D*, 98:104035, Nov 2018.
- [16] 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.
- [17] 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.
- [18] Justin C. Feng. Volume average regularization for the Wheeler-DeWitt equation. *Phys. Rev. D*, 98:026024, Jul 2018.
- [19] 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.
- [20] 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.
- [21] Justin C. Feng and Richard A. Matzner. The Weiss variation of the gravitational action. *Gen. Relativ. Gravit.*, 50(8):99, Jul 2018.
- [22] 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, Jan 2022. doi:10.5281/zenodo.5850992
- [2] Justin C. Feng, Filip Hejda, and Sante Carloni. 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: 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](https://justincfeng.github.io/Tensors_Poor_Man.pdf)