Jorge Noronha, Ph.D.

Curriculum Vitae



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Department of Physics, University of Illinois Urbana-Champaign, 1110 West Green Street, Urbana, IL 61801-3003, USA

Professional Experience

- **Nov. 2025-Present**: Department of Physics, University of Illinois Urbana-Champaign, IL, USA

  John Bardeen Scholar in Electrical Engineering and Physics, sponsored by the Sony Corporation

- **Aug. 2024-Present**: Department of Physics, University of Illinois Urbana-Champaign, IL, USA

  Professor of Physics

- **July 2020 - Present**: Illinois Center for Advanced Studies of the Universe, University of Illinois Urbana-Champaign, IL, USA

  Associate Director

- **Aug. 2019-2024**: Department of Physics, University of Illinois Urbana-Champaign, IL, USA

  Associate Professor of Physics

- **2017-July 2019**: Institute of Physics, University of São Paulo, Brazil

  Associate Professor of Physics

- **2011-2016**: Institute of Physics, University of São Paulo, Brazil

  Assistant Professor of Physics

- **2015**: Department of Physics, Columbia University, NY, USA

  Visiting Professor (sabbatical year)

- **Summer 2009 and 2010**: Institute of Theoretical Physics, Goethe University, Frankfurt, Germany

  Visiting Scientist

- **2008-2011**: Department of Physics, Columbia University, NY, USA

  Postdoctoral Research Scientist

Education

2007: Ph.D. in Physics ("Summa cum Laude"), Goethe University Frankfurt, Germany. Adviser: Prof. Dirk H. Rischke

- Determined the properties of the ground state of QCD matter at very large baryon densities in the presence of strong magnetic fields.
- Awarded best Ph.D. thesis of the year. Title: *The Role of Gauge Fields in Cold and Dense Quark Matter*.

2004: M.Sc. in Physics, Brazilian Center for Physics Research, RJ, Brazil.

2003: B.Sc. in Physics ("cum Laude"), Federal University of Rio de Janeiro, Brazil.

Research Expertise and Interests

My research uncovers the properties of exotic states of matter and the fundamental principles governing their dynamics. My work draws on statistical mechanics, quantum field theory, and applied mathematics (in particular, the analysis of nonlinear partial differential equations) to develop new tractable models, establish rigorous constraints derived from fundamental physical principles, and determine the regime of validity of effective descriptions of complex, multiscale physical phenomena.

- **Nonequilibrium statistical mechanics:** Emergence of collective behavior, kinetic theory, hydrodynamic attractors, and effective field theory descriptions of stochastic systems.
- **Mathematical physics and general relativity:** Causality, stability, and well-posedness of nonlinear evolution equations, including relativistic viscous fluids coupled to Einstein's equations.
- **Quantum many-body systems and quantum information:** Strongly interacting matter, quantum information geometry, and quantitative bounds on response functions and quantum distinguishability.
- **Effective descriptions across scales:** Fluid dynamics, effective field theory, and holographic duality as tools for connecting microscopic interactions to emergent collective behavior, with applications to quark-gluon plasma, neutron star mergers, and condensed matter systems.

Awards, Honors, and Fellowships

- John Bardeen Scholar in Electrical Engineering and Physics, sponsored by the Sony Corporation, Physics Department at UIUC, since November 2025.
- Robert F. Christy Invited Lecturer at Caltech `https://pma.caltech.edu/christy-lecture-series`, Jan 2024.
- Elected Affiliated Member of the Brazilian Academy of Sciences (2015).
- "Best Undergraduate Teacher" (Professor Homenageado do Curso de Bacharelado) in 2015 by the Institute of Physics at the University of São Paulo.
- Gernot and Frank Carin Prize (best physics Ph.D. thesis of the year), Institute for Theoretical Physics, Goethe University, 2008, Frankfurt, Germany.
- Frankfurt Institute for Advanced Studies Ph.D. Fellowship, 2004- 2007, Goethe University Frankfurt, Germany.
- FAPERJ Fellowship (Top M.Sc. Physics student in Rio de Janeiro), 2004, Rio de Janeiro, Brazil.

Research Performance

- **Funding at UIUC**: Total amount awarded at UIUC since Aug. 2019: 2,471,000 US dollars, see details below.
- **Funding at USP**: Total amount awarded equivalent to 864,000 US dollars from 2011— July 2019 as PI by Brazilian Funding Agencies CNPq and FAPESP (this amount also includes joint grants with Ohio State University and Columbia University), see details below.
- **Publications- 167 Peer Reviewed Publications**, which include *3 papers with 300+ citations*, *35 papers with 100-299 citations*, 19 Phys. Rev. Lett., 1 Phys. Rev. X, 1 Nature Physics, 1 invited paper in Nature, and 3 Editor's Suggestions in Phys. Rev. Lett., Phys. Rev. D, and Phys. Rev. C. **Total citations:** $\sim$ 11163, **h-index:** 64
(Source: scholar.google.com/citations?user=xpHMZ78AAAAJ).
(Source: inspirehep.net/author/profile/J.Noronha.1).
- **Talks**- *131 talks* at conferences/workshops and universities, which include 4 plenary talks, 21 colloquia, 5 series of invited lectures, and 86 invited seminars (see details below).
- **Service and Committees**- Associate Director of the Illinois Center for Advanced Studies of the Universe (ICASU) and Executive Committee Member since 2020, Head of Qualifying Exam Committee at Illinois since 2025, American Physical Society Division of Nuclear Physics Program Committee (2021-2023), affiliated Member of the Brazilian Academy of Sciences, referee for research grants from 5 different agencies including DOE, referee for 21 different scientific journals, organizing committee of the Hot Quarks Conference (2018-2022-2024), organizing committee of an 8-week KITP program (2023), organizer of 2 summer schools in theoretical particle/cosmology and nuclear

physics (2015), convener of XLVII International Symposium on Multiparticle Dynamics (ISMD2017), supervisor of 6 postdoctoral scientists, 12 Ph.D. students, 2 M.Sc. students, 6 undergraduate students, and 2 other students mentored (see details below).

Research Funding

PI of the DOE umbrella grant "Theoretical Developments in Hot and Dense QCD Matter In and Out of Equilibrium", total amount awarded = 1,375,000 US dollars, 2023-2027.

PI of NSF REU grant "Applying the Tools of Physics to Explore the Macroscopic, Microscopic, and Quantum Worlds". Total amount and amount awarded to PI = 316,734 US dollars, 2023-2026.

Co-PI of NSF Cyberinfrastructure for Sustained Scientific Innovation (CSSI) Grant (recommended for funding). Title: Frameworks: MUSES, Modular Unified Solver of the Equation of State. Total amount = 4,421,366 US dollars. Amount awarded to co-PI = 500,000 US dollars, 2021—2026.

PI of DOE Nuclear Theory Grant, No. DE-SC0021301, total amount awarded = 280,000 US dollars, Period: 2020 - 2023.

Total amount awarded (2011-2019) as PI: 864,000 US dollars. Brazilian universities have no tuition/payroll expenses (or overhead) and faculty jobs already cover 12 months.

- FAPESP postdoctoral scholarship salary, from 07/2018 - 07/2020, amount awarded = 51,000 US dollars.
- Principal Investigator (with 2 other scientists) of a FAPESP Topical Collaboration (2017-2022) in Sao Paulo, amount awarded = 314,000 US dollars.
- FAPESP Ph.D. student salary, from 05/2016-05/2019, amount awarded = 44,000 US dollars.
- Joint FAPESP/The Ohio State University research grant, from 06/2016 - 06/2018, amount awarded = 50,000 US dollars.
- Joint FAPESP BPE/Columbia University sabbatical year grant in 2015, amount awarded = 50,000 US dollars.
- CNPq high productivity grant, amount awarded = 36,000 US dollars, 2012 - 2019.
- APS/SBF Brazil-U.S. Physics Ph.D. Student visit program in 2012, amount awarded = 3,000 US dollars.
- FAPESP research grant, from 10/2012 - 10/2014, amount awarded = 22,000 US dollars.
- Joint FAPESP/The Ohio State University research grant, from 10/2013 - 10/2014, amount awarded = 10,000 US dollars.

- FAPESP Ph.D. student salary, from 03/2012-02/2015, amount awarded = 69,000 US dollars.
- FAPESP M.Sc. student salary, from 03/2014-01/2015, amount awarded = 10,000 US dollars.
- Two FAPESP postdoctoral scholarship salaries, from 01/2012-11/2016, amount awarded = 205,000 US dollars.

Teaching Experience

- Lectures at the University of Illinois Urbana-Champaign:

  - PHYS 515, General Relativity I, Fall 2025, graduate level. Ranked excellent by the students.

  - PHYS 504, Statistical Physics, Spring 2025, graduate level. Ranked excellent by the students.

  - PHYS 515, General Relativity I, Fall 2024, graduate level. Ranked excellent by the students.

  - PHYS 211, University Physics: Mechanics, Fall 2023, undergraduate level (second lecturer).

  - PHYS 504, Statistical Physics, Spring 2023, graduate level. Ranked excellent by the students.

  - PHYS 580, Quantum Mechanics I, Fall 2022, graduate level. Ranked excellent by the students.

  - PHYS 504, Statistical Physics, Spring 2022, graduate level. Ranked excellent by the students.

  - PHYS 580, Quantum Mechanics I, Fall 2021, graduate level. Ranked excellent by the students.

  - PHYS 504, Statistical Physics, Spring 2021, graduate level. Ranked excellent by the students.

  - PHYS 101, College Physics: Mech & Heat (Spring and Fall 2020), undergraduate level.

- Lectures at the University of São Paulo (undergraduate level):

  - Introduction to Electromagnetism (for physicists): SS 2011.

  - Methods of Theoretical Physics I (for physicists, astronomers, and geophysicists): WS 2011, SS 2012, WS 2012.

  - Physics of Oscillations and Waves (for engineers): WS 2012, WS 2014.

  - Introduction to Classical Mechanics (for engineers): SS 2014, SS 2016, SS 2017, SS 2018, SS 2019.

- Lectures at the University of São Paulo (graduate level):

  - Relativistic hydrodynamics and the gauge/string duality, SS 2013.

- Invited guest lecturer at Columbia University, "High Energy Nuclear Theory", 2015.

Undergraduate, Graduate, and Postdoctoral Advisees

- Dr. Isabella Danhoni, (postdoctoral scientist), University of Illinois Urbana-Champaign, started in October 2024.
- Dr. Kevin Ingles (NSF Ascend Postdoctoral Scientist), University of Illinois Urbana-Champaign, Aug. 2023 – Aug. 2024.
- Abby Keenan, University of Illinois Urbana-Champaign, PhD expected in 2029.
- Zhili Zhou, University of Illinois Urbana-Champaign, PhD expected in 2030.
- Douglas Scalioni, University of Illinois Urbana-Champaign, PhD expected in 2029.
- Dhruv Kush, University of Illinois Urbana-Champaign, PhD expected in 2029.
- Yumu Yang, University of Illinois Urbana-Champaign, passed Prelim Exam in the spring of 2024, Ph.D. expected in 2027.
- Ian Cordeiro, University of Illinois Urbana-Champaign, passed Prelim Exam fall of 2023, Ph.D. expected in 2027.
- Nick Abboud, University of Illinois Urbana-Champaign, passed Prelim Exam in the fall of 2023, Ph.D. expected in 2027.
- Nick Clarisse, University of Illinois Urbana-Champaign, Ph.D., graduated in April 2026. Now research analyst at ...
- Nicki Mullins, University of Illinois Urbana-Champaign, Ph.D., graduated in October 2025. Now a postdoc at North Carolina State University.
- Vicente Castro (UIUC Physics undergraduate), since 2024.
- Nicolas Frazao (UIUC Physics undergraduate), 2022 – 2024. Now a PhD student at Caltech.
- Dr. Mauricio Hippert (postdoctoral scientist), University of Illinois Urbana-Champaign, 2021 – 2023. Assistant professor at Centro Brasileiro de Pesquisas Físicas (CBPF), Rio de Janeiro, Brazil, starting in January 2025.
- Dr. Enrico Speranza (postdoctoral scientist), University of Illinois Urbana-Champaign, 2020 – 2023. Now a Marie Sklodowska-Curie Postdoctoral Fellow and Senior Research Fellow, CERN. Assistant professor at the University of Florence, Italy, in the Fall of 2025.
- Abby Keenan, 2021 Physics REU student, now a Ph.D. student at the University of Illinois Urbana-Champaign.
- Alex Lu (UIUC Physics undergraduate), 2020-2022, now a Ph.D. student at the University of Texas at Austin.
- Ariel Lerman (UIUC Mathematics undergraduate), 2020-2023, awarded the Barry Goldwater Scholarship in 2021, now a Ph.D. student at Yale University.

- Dr. Mauricio Hippert (FAPESP postdoctoral scientist 2018-2020), University of São Paulo.
- Dr. Renato Critelli (M.Sc. 2016) and (Ph.D. 2019), University of São Paulo.
- Dr. Maicon Zaniboni (Ph.D. 2017), University of São Paulo.
- Dr. Romulo Rougemont (FAPESP postdoctoral scientist 2013-2016) at the University of São Paulo, now an Associate Professor at the Federal University of Goais, Brazil.
- Dr. Stefano Finazzo (Ph.D. 2015), University of São Paulo.
- Hugo Marrochio (M.Sc. 2015) at the University of São Paulo, now a postdoctoral scientist at the University of California, Berkeley.
- Dr. Rone Andrade (FAPESP postdoctoral scientist 2012-2014), University of São Paulo.
- Arthur Lopes (B.Sc. 2014), undergraduate research project at the University of São Paulo.
- Students mentored:

  - Dr. Camila S. Machado, then a M.Sc. student at the University of São Paulo.

  - Dr. Andrej Ficnar, then a Ph.D. student at Columbia University.

Service to Profession

- Co-organizer of the NSF Scoping Workshop on the Future of Nuclear Theory in the U.S, May 2026, Columbus, Ohio.
- Co-organizer of the Collective Dynamics in Little Bangs Worshop, Goethe University Frankfurt, Frankfurt, Germany, August 2025.
- Co-organizer of the Foundations and Applications of Relativistic Hydrodynamics Worshop, Galileo Galilei Institute, Florence, Italy, March – May 2025.
- Co-organizer of the EFTs, Gravity, and Fluid Dynamics: Progress, Challenges, and Emerging Opportunities Workshop, funded by The Gravity Theory Trust, taking place at ICASU in Urbana, Illinois on December 16 – 18, 2024.
- Co-organizer of the 8-week Kavli Institute for Theoretical Physics Program "The Many Faces of Relativistic Fluid Dynamics", University of California Santa Barbara, May – July 2023.
- Member of 24 prelim exams/PhD theses defenses at the University of Illinois since the fall of 2019.
- American Physical Society Division of Nuclear Physics Program Committee, 2021-2023.
- Co-organizer of the (virtual) workshop "Relativistic Hydrodynamics: Foundations, Novel Applications and Interdisciplinary Connections", Illinois-Potsdam, December 2020.

- Member of the organizing committee of the (virtual) workshop "From heavy-ion collisions to neutron stars", Illinois, August 2020.
- Member of the organizing committee of the Hot Quarks 2018 conference and the next editions to be held in 2022 and 2024.
- Convener of the session "Collectivity in high energy collisions: jets, flow and other aspects" of the XLVII International Symposium on Multiparticle Dynamics (ISMD2017), Tlaxcala City, Mexico, Sept. 2017.
- Head organizer of the XVII Jorge André Swieca Summer School on Theoretical Nuclear Physics, February 22-28, 2015, Maresias, SP, Brazil.
- Co-organizer of the III Joint Dutch-Brazil School on Theoretical Physics/XVIII Jorge André Swieca Summer School on Particles and Fields, Jan. 19-30, 2015, Campos do Jordão, SP, Brazil.
- Organizer of the 9th Relativistic Aspects of Nuclear Physics workshop (RANP2013), September 23-27, 2013, Rio de Janeiro, Brazil.
- Organizer of the Nuclear Theory Seminars at Columbia University from Feb. 2008 to Jan. 2011.
- Referee of grant proposals from US Department of Energy (DOE), South Africa National Research Foundation (NRF), Belgium Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO), São Paulo Research Foundation (FAPESP), Brazilian National Council for Scientific and Technological Development (CNPq).
- Referee for 21 journals: Nature, Physical Review X, Physical Review Letters, Journal of High Energy Physics, Physics Letters A, Physics Letters B, Physical Review C, Physical Review D, Annals of Physics, Progress in Particle and Nuclear Physics, Nuclear Physics A, Nuclear Physics B, Journal of Physics G, New Journal of Physics, European Physical Journal A, European Physical Journal C, International Journal of Modern Physics D, Journal of Physics A: Mathematical and Theoretical, Journal of Mathematical Physics, Journal of Statistical Mechanics: Theory and Experiment (JSTAT), and Brazilian Journal of Physics.

University Service

- Head of the UIUC Physics Qual Committee, starting in the Fall 2025.
- Since 2023, Principal Investigator and Head of the Physics Department's Research Experience for Undergraduates Program, funded by NSF.
- Member of the UIUC Physics Qual Committee since 2022.
- Co-organizer of the UIUC Physics Colloquium, fall 2020 - spring 2021.
- Associate Director of the Illinois Center for Advanced Studies of the Universe (ICASU) since 2020.
- Member of the Illinois Physics Department's Faculty Advisory Committee since 2019-2021.

- Lecture for the general public (Convite à Fisica, "An invitation to Physics" series) about the "90 years of the Dirac equation" at the University of São Paulo in 2018.
- Member of 5 M.Sc. and 19 Ph.D. exam committees in Brazilian universities from 2011-2018.
- Lecture on Black Holes during the IFGW-UNICAMP 2016 Summer School, UNICAMP, Campinas, SP, Brazil, Feb. 2016.
- Lecture for the general public (Convite à Fisica, "Invitation to Physics" series) about "Quarks, Gluons, and other Building Blocks of Nature" at the University of São Paulo in 2014.
- Lectures on Black Hole Physics and Strongly Coupled Systems for Physics undergraduates at the University of São Paulo's Summer School Program in 2013.
- Lecture for the general public (Convite a Fisica, "Invitation to Physics" series) about "String Theory, Black Holes, and Fluids" at the University of São Paulo in 2011.

Media Coverage

My work *New Exact Solution of the Relativistic Boltzmann Equation and its Hydrodynamic Limit*, Phys. Rev. Lett. 113, no. 20, 202301 (2014).

http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.113.202301

was an editor's suggestion and was also discussed in several media outlets (within the top 5% of all research outputs scored by Altmetric):

- http://agencia.fapesp.br/researcher_proposes_quarkgluon_plasma_expansion_model/21500/
- http://phys.org/news/2014-12-physics-professor-publishes-exact-solution.html
- http://www.eurekalert.org/pub_releases/2014-12/ksu-ksp121614.php

- "Flutuacoes quanticas ajudam a resolver misterio de 10 anos", EXAME (popular Brazilian magazine - in Portuguese), 11/07/2016
- "Quantum fluctuations help solve decade-old puzzle", Agencia FAPESP, 8/03/2016
- "Quark-gluon plasma can be described by five-dimensional black hole", Agencia FAPESP, 2/10/016

Languages

- Portuguese (native speaker)
- English (fluent)
- German (beginner)

Plenary Talks

1. "Causal Theories of Fluid Dynamics in heavy-ions, binary neutron star mergers, and supermassive black holes", plenary talk at Strong and Electroweak Matter Conference, September 2024, Frankfurt, Germany.
2. "Collective effects in nuclear collisions: theory overview", plenary talk given at Quark Matter 2018 - XXVII International Conference on Ultra-relativistic Nucleus-Nucleus Collisions, Venice, Italy, May 2018.
3. "Quark-Gluon Plasma: The hottest (and the tiniest) most perfect fluid ever made", plenary talk given at XXXVI Brazilian Physics Conference of Particles and Fields, MG, Brazil, Sept. 2015.
4. "The Heavy Quark Potential at Strong Coupling", plenary talk at XIV International Conference on Strangeness in Quark Matter, Rio de Janeiro, Brazil, Sept. 2009.

Invited Lectures

1. Annual Robert F. Christy Lecture Series at Caltech, which selects an outstanding physicist to share their cutting-edge research findings with faculty, postdocs, students, and the wider Caltech community, Jan 2024.
2. Lectures on the gauge/gravity duality and its applications to the quark-gluon plasma given at the school "New Trends in High-Energy Physics and QCD", International Institute of Physics (IIP-UFRN), Natal, Brazil, Oct. 2014.
3. Lectures on the gauge/gravity duality given at the school "Hadron Physics: A Challenge to Holography", International Institute of Physics (IIP-UFRN), Natal, Brazil, August 2013.
4. "Quark-Gluon Plasma: The Hottest (and Tiniest) Perfect Fluid Ever Made", lecture given at the workshop New Horizons in Lattice Field Theory, International Institute of Physics (IIP-UFRN), Natal, Brazil, March 2013.
5. Lectures on the gauge/gravity duality given at the XVII Jorge André Swieca Summer School on Particles and Fields, Campos do Jordão, SP, Brazil, Jan. 2013.

Invited Seminars and Colloquia

1. "Exact results on diffusivity of open quantum many-body systems", invited seminar at Wayne State University, January 2027.
2. "New developments in general-relativistic viscous fluid dynamics", invited seminar at the New Frontiers in QCD 2026 Workshop, Yukawa Institute for Theoretical Physics, Kyoto University, Japan, October 2026.
3. "Emergent Viscous Hydrodynamics From a Single Quantum Particle", invited seminar at the Crete Center for Theoretical Physics, Crete, Greece, February 2026.
4. "QCD critical point from holography", invited talk for the discussion session at the The QCD Critical Point: Are We There Yet? Workshop, Institute for Nuclear Theory (INT), University of Washington, Seattle, WA, November 2025.

5. "Emergent Viscous Hydrodynamics From a Single Quantum Particle, invited talk at the Quantum Theory at the Extremes Workshop, UIC, IL, August 2025.

6. "The MUSES Cyberinfrastructure and what it can do for you in heavy-ion collisions", invited talk at the Joint March Meeting and April Meeting: Global Physics Summit 2025, CA, March 2025.

7. "Causal Theories of Fluid Dynamics in heavy-ions, binary neutron star mergers", nuclear physics seminar at UIUC, December 2024.

8. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics Colloquium at Argonne National Laboratory, IL, October 2024.

9. "Pushing the Boundaries of Fluid Dynamics", invited talk at the Quantum Theory at the Extremes Workshop, UIC, IL, August 2024.

10. "Pushing the boundaries of relativistic fluid dynamics", Simons Turbulence Seminar (online), March 2024.

11. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Colloquium at the University of Colorado, CO, USA, December 2023.

12. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", KITP Blackboard Colloquium at the University of California Santa Barbara, CA, USA, June 2023.

13. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics Colloquium at University of Texas Commerce, TX, USA, April 2023.

14. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", (virtual) Physics Seminar at University of Cape Town, South Africa, April 2023.

15. "Pushing the boundaries of relativistic fluid dynamics", invited seminar at the University of Amsterdam, Netherlands, March 2023.

16. "A causal and stable theory of chiral hydrodynamics", invited seminar at ECT* Trento Workshop Holographic Perspectives on Chiral Transport, March 2023.

17. "Pushing the boundaries of relativistic fluid dynamics", invited seminar at the Princeton Gravity Initiative, Princeton University, NJ, USA, March 2023.

18. "Fundamental constraints in relativistic fluids and their role in magnetohydrodynamics", invited seminar at the Joint PGI/PCTS Workshop Improving Black Hole Accretion Models with Plasma Theory, Princeton University, NJ, USA, Feb. 2023.

19. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics Colloquium at Vanderbilt University, TN, USA, January 2023.

20. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics Colloquium at Goethe University Frankfurt, Germany, June 2022.

21. "Transient Relativistic Fluid Dynamics in a General Hydrodynamic Frame ", invited Frankfurt MHD seminar, Goethe University Frankfurt, Germany, May 2022.

22. "Hydrodynamic Frames: The Good, The Bad, and The Ugly", invited High Energy Theory Seminar, Lawrence Berkeley National Laboratory, May 2022 (virtual).

23. "Hydrodynamic Frames: The Good, The Bad, and The Ugly", invited Nuclear Theory Seminar, Brookhaven National Laboratory, December 2021 (virtual).

24. "Hot and dense quark-gluon plasma from black hole engineering", invited RHIC-BES on-line seminar, Nov. 2021 (virtual).

25. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", colloquium at the Mathematical Physics Department at the University of Sao Paulo, Brazil, May 2021 (virtual).

26. "Deconstructing Relativistic Fluid Dynamics", Theoretical Physics colloquium at Arizona State University, April 2021 (virtual).

27. "Causal and Stable First-Order Theories of Relativistic Fluids", invited Frankfurt MHD seminar, Goethe University Frankfurt, Germany, April 2021 (virtual).

28. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", invited colloquium at Federal University Fluminense (UFF), Brazil, Feb. 2021 (virtual).

29. "General-Relativistic Viscous Fluid Dynamics", invited seminar at XX Escola de Verão Jorge André Swieca 2021, Brazil, Feb. 2021 (virtual).

30. "Deconstructing General-Relativistic Viscous Fluid Dynamics", invited seminar at the Institute for Nuclear Theory, Seattle, USA, December 2020 (virtual).

31. "Deconstructing General-Relativistic Viscous Fluid Dynamics", invited seminar at the workshop "Relativistic Fluids at the Intersection of Mathematics and Physics", Mathematical Research Institute of Oberwolfach, Germany, December 2020 (virtual).

32. "Holographic insights to relativistic hydrodynamics", invited colloquium hosted by The Applied Holography Webinars Network, December 2020 (virtual).

33. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics colloquium at Washington State University, October 2020 (virtual).

34. "Deconstructing Relativistic Hydrodynamics", invited speaker at the 2020 Fall Meeting of the APS Division of Nuclear Physics (DNP), New Orleans, LA, October 2020 (virtual).

35. "Generalized Relativistic Navier-Stokes Theory", invited seminar at QCD-RJ, UFF-UFRJ-UERJ, Brazil, August 2020 (virtual).

36. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", invited virtual seminar hosted by the University of Santiago de Compostela, Spain, March 2020 (virtual).

37. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", invited theory seminar at Washington University in St. Louis, MO, March 2020.

38. "Relativistic Fluid Dynamics: From Particle Colliders to Neutron Star Mergers", Physics colloquium at the University of Illinois Urbana-Champaign, IL, Feb 2020.

39. "Viscous fluid dynamics in neutron star mergers", invited seminar at the workshop "Theoretical Foundations of Relativistic Hydrodynamics", Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Canada, November 2019.

40. "Pushing the boundaries of fluid dynamics", invited seminar at the Symposium on Contemporary QCD Physics and Relativistic Nuclear Collisions, Central China Normal University, Wuhan, China, November 2019.

41. "Unveiling the secrets of nature's primordial liquid", invited colloquium given at Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, RJ, Brazil, May 2019.

42. "Fluid dynamics in the far-from-equilibrium regime", invited seminar given at the Federal University of Rio de Janeiro (UFRJ), group QCD-RJ, Rio de Janeiro, RJ, Brazil, April 2019.

43. "Relativistic fluid dynamics: from the lab to the sky", FAIR Workshop on Mass Generation in QCD, ICTP-SAIFR, IFT-UNESP, Sao Paulo, SP, Brazil, March 1, 2019.

44. "Unveiling the secrets of nature's primordial liquid", invited special seminar given at the XIX Jorge André Swieca Summer School on Nuclear Theory, Campos do Jordão, SP, Brazil, Feb. 2019.

45. "High density matter out-of-equilibrium: from the lab to the sky", Particle-Astro-Nuclear seminar given at Wayne State University, Detroit, MA, USA, Feb. 2019.

46. "Fluid dynamics in the far-from-equilibrium regime", seminar given at the Topical Workshop "Exploring the Perfect Liquid", Munich Institute for Astro and Particle Physics, Munich, Germany, Sept. 2018.

47. "Unveiling the secrets of nature's primordial liquid", invited seminar given at University of Würzburg, Germany, August 2018.

48. "Unveiling the secrets of nature's primordial liquid", invited colloquium given at Federal University of ABC, Sao Paulo, SP, Brazil, July 2018.

49. "Causality and existence of viscous fluid dynamics in general relativity", invited speaker at the workshop "Foundational Aspects of Relativistic Hydrodynamics", ECT* Trento, Italy, May 2018.

50. "Unveiling the secrets of nature's primordial liquid", nuclear theory seminar given at University of Minnesota, MN, USA, Feb. 2018.

51. "Unveiling the secrets of nature's primordial liquid", high/medium energy physics seminar given at University of Illinois Urbana-Champaign, IL, USA, Feb. 2018.

52. "Unveiling the secrets of nature's primordial liquid", colloquium given at Columbia University, NY, USA, Jan. 2018.

53. "The quest for the critical point of the strong force", Nuclear Physics seminar given at Rutgers University, NJ, USA, Nov. 2017.

54. "Pushing the boundaries of relativistic fluid dynamics", invited Nuclear and Particle Theory seminar given at the Center for Theoretical Physics of the Massachusetts Institute of Technology (MIT), MA, USA, Nov. 2017.

55. "AdS/CFT and the big questions in heavy ion physics", invited seminar given at the workshop 20 Years Later: The Many Faces of AdS/CFT and Holography, Princeton University, NJ, USA, Oct. 2017.

56. "The quest for the critical point of the strong force", colloquium given at the University of Houston, TX, USA, Sept. 2017.

57. "Emergence of hydrodynamic behavior in rapidly expanding fluids", invited seminar given at the Canterbury Tales of Hot QFT's in the LHC Era, University of Oxford, Oxford, UK, July 2017.

58. "Equilibrium and transport properties of the quark-gluon plasma at the BES", invited seminar given at the RHIC & AGS Annual Users' Meeting, BNL, USA, June 2017.

59. "The quest for the critical point of the strong force", colloquium given at the University of Sao Paulo, SP, Brazil, May 2017.

60. "Quark-gluon Plasma: The Hottest (and the Tiniest) Most Perfect Fluid Ever Made", seminar given at Vanderbilt University, TN, USA, Jan. 2017.

61. "Divergence of the gradient expansion in relativistic fluids", Triangle Nuclear Theory (TNT) seminar given at North Carolina State University, NC, USA, Jan. 2017.

62. "Divergence of the gradient expansion in relativistic fluids", nuclear theory seminar given at the Ohio State University, OH, USA, Dec. 2016.

63. "Introduction to the holographic (gauge/string) duality", invited seminar given at Kent State University, Kent, OH, USA, Nov. 2016.

64. "New developments in the kinetic theory description of rapidly evolving systems", invited seminar given at the workshop Relativistic hydrodynamics: theory and modern applications, Mainz Institute for Theoretical Physics (MITP), Mainz, Germany, October 2016.

65. "Event-by-event hydrodynamics + jet energy loss: A solution to the $R_{AA} \times v_2$ puzzle", invited seminar given at the workshop Ultra-Relativistic Heavy Ionz 2016, CERN, Geneva, July 2016.

66. "Weak versus Strong Coupling Non-Equilibrium Dynamics in an Expanding Universe", seminar given at the workshop Strings at Dunes held at the International Institute of Physics, UFRN, Natal, Brazil, July 2016.

67. "Weak versus Strong Coupling Non-Equilibrium Dynamics in an Expanding Universe", colloquium given at IFT-UNESP, where the ICTP-SAIFR is located, Sao Paulo, Brazil, June 2016.

68. "Holographic Quark-Gluon Plasma in a Strong Magnetic Field", invited talk at the workshop on Magnetic Fields in Hadron Physics, ICTP South American Institute for Fundamental Research, São Paulo, Brazil, from May 9-13, 2016.

69. "Analytic solution of the Boltzmann equation in an expanding universe", seminar given at Uppsala University, Sweden, March 2016."

70. "Event-by-event hydrodynamics + jet energy loss: A solution to the $R_A A \times v_2$ puzzle", seminar given at Rice University, TX, USA, Feb. 2016.

71. "Black hole engineering and the world's smallest fluid", seminar given at the University of Houston, TX, USA, Feb. 2016.

72. "Transport Properties in a Strongly Coupled, Baryon-Rich QGP", invited talk at the workshop on Opportunities for Exploring Longitudinal Dynamics in Heavy Ion Collisions at RHIC, RIKEN BNL Research Center at Brookhaven National Laboratory, NY, USA, from January 20-22nd, 2016.

73. "Jet Quenching Effects on Flow Harmonics", seminar given at Instituto de Ciencias Nucleares, Universidad Autonoma de Mexico, Mexico City, Mexico, Jan. 2016.

74. "Holographic Predictions for the World's Smallest Fluid", theory seminar at Columbia University, NY, USA, Dec. 2015.

75. "Quark-Gluon Plasma: The hottest (and the tiniest) most perfect fluid ever made", colloquium given at Kent State University, OH, USA, Nov. 2015.

76. "Quark-Gluon Plasma: The hottest (and the tiniest) most perfect fluid ever made", seminar given at Lehigh University, PA, USA, Oct. 2015.

77. "New Developments in Relativistic Hydrodynamics and Kinetic Theory", nuclear theory seminar given at Stony Brook University, NY, USA, Oct. 2015.

78. "Analytical (exact) results in relativistic kinetic theory", seminar given at the Symposium on Future LHC and RHIC Physics, CCNU, Wuhan, China, Sept. 2015.

79. "Analytic solution of the Boltzmann equation in an expanding universe", RIKEN lunch seminar, Brookhaven National Laboratory, NY, USA, Sept. 2015.

80. "Exact solutions of relativistic hydrodynamics and kinetic theory", seminar given at XII Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2015), Colorado, USA, May 2015.

81. "Jet quenching effects on flow harmonics", seminar given at the ALICE JET workshop, Yale University, USA, May 2015.

82. "New exact solution of the relativistic Boltzmann equation and its hydrodynamic limit", seminar given at the Arizona State University, AZ, USA, April 2015.

83. "Second order hydrodynamic coefficients for the non-conformal QGP from holography", nuclear theory seminar at The Ohio State University, OH, USA, March 2015.

84. "Second order hydrodynamic coefficients for the non-conformal QGP from holography", nuclear physics & RIKEN theory seminar at Brookhaven National Laboratory, NY, USA, March 2015.

85. "Exact solution of the relativistic Boltzmann equation and its hydrodynamic limit", JET COLLABORATION online seminar, Oct. 2014.

86. "Analytical Solutions of 2nd order conformal hydrodynamics", nuclear theory seminar given at the Ohio State University, OH, USA, Feb. 2014.

87. "Quark-Gluon Plasma: The Hottest (and Tiniest) Perfect Fluid Ever Made", colloquium given at ICTP/SAIFR, UNESP, SP, Brazil, Sept. 2013.

88. "New Results for the Transport Coefficients of the QGP from Holography", seminar given at the Workshop New Frontiers in QCD, Yukawa Institute for Theoretical Physics, Kyoto, Japan, Dec. 2013.

89. "Holography and Screening in Strongly Coupled Plasmas", XXXIV Brazilian Physics Conference of Particles and Fields, MG, Brazil, Ago. 2013.

90. "Transient Fluid Dynamics from Weyl Invariance", seminar given at International Workshop XII Hadron Physics, RS, Brazil, April 2012.

91. "Perfect Fluids from String Theory", colloquium given at the University of São Paulo, SP, Brazil, Aug. 2011.

92. "Hard Probes and the AdS/CFT Correspondence: Theory and Predictions", seminar given at the 19th Particles & Nuclei International Conference (PANIC 2011), MIT, MA, USA, July 2011.

93. "The Origin of the Relaxation Time in Relativistic Dissipative Fluid Dynamics", MIT theory seminar, MIT, MA, USA, July 2011.

94. "The (Hottest) Most Perfect Fluid of Nature and Its Holographic Description", seminar given at the Brazilian Physics Conference of Particle and Fields, Foz do Iguacu, SC, Brazil, June 2011.

95. "Energy Loss in Conformal (and Non-Conformal) Strongly-Coupled Plasmas", seminar given at McGill University, Montreal, Canada, Nov. 2010.

96. "AdS/CFT Approaches to Problems in Relativistic Heavy-Ion Collisions", seminar given at XL International Symposium on Multiparticle Dynamics (ISMD 2010), Antwerp, Belgium, Sept. 2010.

97. "AdS/CFT and Heavy Ion Collisions", seminar given at Baruch College (City University of New York), NY, USA, Sept. 2010.

98. "Understanding Jet Energy Loss in QCD at Weak and Strong Coupling ", seminar given at High Energy Strong Interactions 2010, Yukawa Institute for Theoretical Physics, Kyoto, Japan, July 2010.

99. "Polyakov Loops in Holographic QCD", seminar given at the workshop AdS/CFT: Nuclear and Many-body Physics, Princeton Center for Theoretical Sciences, Princeton, NJ, USA, March 2010.

100. "Constraints on AdS/CFT Gravity Dual Models of Heavy Ion Collisions", seminar given at the KFKI Research Institute for Particle and Nuclear Physics (RMKI), Hungary, July 2009.

101. "Can AdS/CFT be used to describe soft and hard phenomena observed at RHIC?", seminar given at University of Heidelberg, Germany, June 2009.

102. "Constraining AdS/CFT models of the sQGP", seminar given at Goethe University Frankfurt, Germany, June 2009.

103. "Away-side Conical Correlations Associated with Heavy Quark Jets in AdS/CFT", seminar given at CATHIE-RIKEN workshop: Critical Assessment of Theory and Experiment on Correlations at RHIC, Brookhaven National Laboratory, NY, USA, Feb. 2009.

104. "Away-side Conical Correlations Associated with Heavy Quark Jets in AdS/CFT and pQCD", seminar given at the workshop: Heavy Quark Physics in Nucleus-Nucleus Collisions at UCLA, CA, USA, Jan. 2009.

105. "Away-side Conical Correlations Associated with Heavy Quark Jets in AdS/CFT and pQCD", seminar given at Argonne National Laboratory, IL, USA, Oct. 2008.

106. "Non-Mach Conical Di-jet Correlations in AdS/CFT", seminar given at Brookhaven National Laboratory, NY, USA, Oct. 2008.

107. "An Informal Introduction to the Gauge/String Duality", seminar given at the meeting of the European Heavy Ion Physics Network, Italy, Sep. 2008.

Oral Presentations

1. "Location of the critical point from holography", 15th Workshop on Critical Point and Onset of Deconfinement, LBNL, May 2024.

2. "Challenges to Solving Chiral Hydrodynamics", seminar given at the 2021 DNP APS Fall Meeting, Oct. 2021 (virtual).

3. "A New Approach To First-Order Relativistic Hydrodynamics", seminar given at Initial Stages 2021, Israel, Jan. 2021 (virtual).

4. "Connecting far-from-equilibrium hydrodynamics to resummed transport coefficients and attractor solutions", seminar given at the Quark Matter 2019 Conference, Wuhan, China, November 2019.

5. "Connecting far-from-equilibrium hydrodynamics, resummed transport coefficients, and attractor solutions", seminar given at the Initial Stages 2019 Conference, Columbia University, NY, June 2019.

6. "The onset of fluid-dynamical behavior in relativistic kinetic theory", seminar given at the Quark Matter 2017 conference, Chicago, IL, USA, Feb. 2017.

7. "Heavy flavor R_{AA} and v_n in event-by-event viscous hydrodynamics", seminar given at the Hard Probes 2016 conference, Wuhan, China, Sept. 2016.

8. "Event-by-event hydrodynamics + jet energy loss: A solution to the $R_{AA} \times v_2$ puzzle", seminar given at the Hot Quarks 2016 conference, South Padre Island, TX, USA, Sept. 2016.

9. "New exact solution of the relativistic Boltzmann equation and its hydrodynamic limit", seminar at the Ohio-Region Section of the APS (OSAPS), Kent State University, Spring 2015 Meeting, OH, USA, March 2015.

10. "Second order transport coefficients for the QGP from holography", seminar given at the XXXV Brazilian Physics Conference on Particles and Fields, MG, Brazil, Sept. 2014.

11. "Hadron mass spectrum, elliptic flow, and the eta/s of hot hadronic matter", seminar given at the 29th Winter Workshop on Nuclear Dynamics, Squaw Valley, CA, USA, Feb. 2013.

12. "Mach Cones in Heavy Ion Collisions", seminar given at the Third Joint Meeting of the Nuclear Physics Divisions of the American Physical Society and The Physical Society of Japan, Waikoloa, HI, USA, Oct. 2009.

13. "Near zone Navier-Stokes analysis of heavy quark jet quenching in a N=4 SYM plasma", seminar given at 24th Winter Workshop on Nuclear Dynamics, TX, USA, April 2008.

14. "Tests of Fluidity of AdS/CFT Plasma Wakes", seminar given at Quark Matter 2008: 20th International Conference on Ultrarelativistic Nucleus Nucleus Collisions, Jaipur, India, Feb. 2008.

15. "Fluctuation-driven first-order phase transition in color superconductivity", seminar given at International Workshop at the ECT* Trento: QCD at finite density, Trento, Italy, March 2006.

Invited Papers and Reviews

1. G. S. Rocha, D. Wagner, G. S. Denicol, J. Noronha and D. H. Rischke, "Theories of Relativistic Dissipative Fluid Dynamics," Entropy **26**, no.3, 189 (2024).

2. J. Noronha, B. Schenke, C. Shen and W. Zhao, "Progress and Challenges in Small Systems," Int. J. Mod. Phys. E **33**, no.06, 2430005 (2024).

3. Invited paper published in Nature, *Diverse data tighten constraints for neutron stars*, Nature News and Views, June 8 (2022) https://www.nature.com/articles/d41586-022-01532-2.

4. Invited topical review published in Journal of Physics G. V. Dexheimer, J. Noronha, J. Noronha-Hostler, N. Yunes and C. Ratti, *Future physics perspectives on the equation of state from heavy ion collisions to neutron stars*, J. Phys. G: Nucl. Part. Phys. **48**, 073001 (2021).

5. One of the co-authors of a paper written for the 2023 Long Range Plan of Nuclear Science: A. Lovato, T. Dore, R. D. Pisarski, B. Schenke, K. Chatziioannou, J. S. Read, P. Landry, P. Danielewicz, D. Lee and S. Pratt, *et al.* "Long Range Plan: Dense matter theory for heavy-ion collisions and neutron stars," [arXiv:2211.02224 [nucl-th]].

Peer-reviewed Publications

Rough Summary: 1 Nature Physics, 1 Phys. Rev. X, 19 Phys. Rev. Lett., 1 Astrophys. J. Lett., 1 Living Rev. Rel., 2 Prog. Part. Nucl. Phys., 70 Phys. Rev. D., 28 Phys. Rev. C., 1 Phys. Rev. E., 7 JHEP, 10 Phys. Lett. B, 2 MNRAS, 16 Nucl. Phys. A, 4 invited topical reviews, 1 invited paper in Nature (News and Views), 3 papers as editor's suggestions (Phys. Rev. Lett. , Phys. Rev. D, and Phys. Rev. C). In my field, senior authors are usually listed alphabetically.

1. A. Hegade K. R., Y. Yang, M. Hippert, J. Noronha-Hostler, J. Noronha and N. Yunes, "Dynamical tidal response of neutron stars as a probe of dense-matter properties," Phys. Rev. D **114**, 4, 044014 (2026).

2. M. R. Khan, A. Nascimento, Y. Yang, J. Grefa, M. Hippert, J. Noronha, C. Ratti and R. Rougemont, "Uncertainty quantification of holographic transport and energy loss for the hot and baryon-dense QGP," [arXiv:2603.20482 [nucl-th]], accepted for publication in Phys. Rev. D.

3. V. Chomalí-Castro, N. Clarisse, N. Mullins and J. Noronha, "Solving Bemfica-Disconzi-Noronha-Kovtun diffusion using physics-informed neural networks," [arXiv:2602.16117 [nucl-th]], accepted for publication in Phys. Rev. D.

4. H. Shah, M. Hippert, J. Noronha, C. Ratti and V. Vovchenko, "Lattice-based equation of state with a critical point from constant entropy contours and its comparison to effective QCD approaches," Phys. Rev. D **114**, 3, 034501 (2026).

5. Y. Yang, P. Garella, M. R. Khan, T. E. Restrepo, J. Grefa, J. Jahan, M. Hippert, J. Noronha, C. Ratti and R. Rougemont, "Merging multidimensional equations of state of strongly interacting matter via a statistical mixture," Phys. Rev. D **113**, 11, 114018 (2026).

6. N. Clarisse, E. O. Pinho, T. Patel, F. S. Bemfica, M. Hippert and J. Noronha, "Flux-conservative Bemfica-Disconzi-Noronha-Kovtun hydrodynamics and shock regularization," Phys. Rev. D **113**, no.2, 024051 (2026).

7. I. Cordeiro, F. S. Bemfica, E. Speranza and J. Noronha, "Nonlinear causality of Israel-Stewart theory with diffusion," Phys. Rev. D **113**, no.4, 045024 (2026).

8. H. Shah, M. Hippert, J. Noronha, C. Ratti and V. Vovchenko, "Locating the QCD critical point from first principles through contours of constant entropy density," Phys. Rev. C Letters **113**, no.1, L012201 (2026)

9. Z. L. Zhou, M. Hippert, N. Mullins and J. Noronha, "Emergent Viscous Hydrodynamics From a Single Quantum Particle," Phys. Rev. E **113**, no.1, 014101 (2026).

10. Y. Yang, M. Hippert, E. Speranza and J. Noronha, "Symmetry energy dependence of the bulk viscosity of nuclear matter," Phys. Rev. Lett. **135**, no.22, 222702 (2025).

11. Y. Huang, N. Abboud, Y. Lv, P. Zhu, A. Murzabekova, C. Lee, E. A. Pappas, D. Petruzzi, J. Y. Yan and D. Chauduri, *et al.* "Observation of a dynamic magneto-chiral instability in photoexcited tellurium," Nature Phys. **22**, no.2, 202-208 (2026).

12. A. Dumitru and J. Noronha, "Violation of energy conditions and the gravitational radius of the proton," Phys. Rev. D **112**, no.9, 094057 (2025).

13. C. D. Muncinelli, F. G. Gardim, D. D. Chinellato, G. S. Denicol, A. V. Giannini, M. Luzum, J. Noronha, T. N. da Silva, J. Takahashi and G. Torrieri, "Universality of scaled particle spectra in ultrarelativistic heavy-ion collisions," Phys. Rev. C **112**, no.6, 064922 (2025).

14. L. Barreto, F. M. Canedo, M. G. Munhoz, J. Noronha and J. Noronha-Hostler, "Jet cone radius dependence of RAA and v2 at PbPb 5.02 TeV from JEWEL+TRENTo+v-USPhydro," Phys. Lett. B **860**, 139217 (2025).

15. I. Aniceto, J. Noronha and M. l. Spalínski, "Analytic approach to the relaxation time approximation Boltzmann attractor," Phys. Rev. D **111**, no.7, 076025 (2025).

16. M. Reinke Pelicer, N. Cruz-Camacho, C. Conde-Ocazionez, D. Friedenberg, S. Roy, Z. Zhang, T. A. Manning, M. G. Alford, A. Clevinger and J. Grefa, *et al.* "Building neutron stars with the MUSES calculation engine," Phys. Rev. D **111**, no.10, 103037 (2025).

17. N. Mullins, M. Hippert and J. Noronha, "Effective Action for Relativistic Hydrodynamics from the Crooks Fluctuation Theorem," Phys. Rev. Lett. **134**, no.23, 232302 (2025).

18. G. S. Denicol and J. Noronha, "Stochastic fluctuations and the relaxation time in transient relativistic fluids," Phys. Lett. B **868**, 139773 (2025).

19. T. S. Domingues, R. Krupczak, J. Noronha, T. N. da Silva, J. F. Paquet and M. Luzum, "Effect of causality constraints on Bayesian analyses of heavy-ion collisions," Phys. Rev. C **110**, no.6, 064904 (2024).

20. J. Sousa, J. Noronha and M. Luzum, "Initial energy-momentum to final flow: A general framework for heavy-ion collisions," Phys. Rev. C **110**, no.4, 044909 (2024).

21. G. S. Rocha, I. Danhoni, K. Ingles, G. S. Denicol and J. Noronha, "Branch-cut in the shear-stress response function of massless $\lambda\phi^4$ with Boltzmann statistics," Phys. Rev. D **110**, no.7, 076003 (2024).

22. M. Hippert, J. Noronha and P. Romatschke, "Upper bound on the speed of sound in nuclear matter from transport," Phys. Lett. B **860**, 139184 (2025).

23. Y. Yang, M. Hippert, E. Speranza and J. Noronha, "Far-from-equilibrium bulk-viscous transport coefficients in neutron star mergers," Phys. Rev. C **109** (2024) 1, 015805.

24. L. Gavassino, N. Abboud, E. Speranza and J. Noronha, "First-order relativistic hydrodynamics with an information current," Phys. Rev. D **109**, no.8, 085013 (2024).

25. I. Cordeiro, E. Speranza, K. Ingles, F. S. Bemfica and J. Noronha, "Causality Bounds on Dissipative General-Relativistic Magnetohydrodynamics," Phys. Rev. Lett **133**, no.9, 091401 (2024).

26. R. Krupczak *et al.* [ExTrEMe], "Causality violations in simulations of large and small heavy-ion collisions," Phys. Rev. C **109**, no.3, 034908 (2024).

27. M. Hippert, J. Grefa, T. A. Manning, J. Noronha, J. Noronha-Hostler, I. Portillo Vazquez, C. Ratti, R. Rougemont and M. Trujillo, "Bayesian location of the QCD critical point from a holographic perspective," Phys. Rev. D **110**, no.9, 094006 (2024).

28. N. Abboud, E. Speranza and J. Noronha, "Causal and stable first-order chiral hydrodynamics," Phys. Rev. D **109**, no.9, 094007 (2024).

29. A. Lerman, M. M. Disconzi and J. Noronha, "Local well-posedness and singularity formation in non-Newtonian compressible fluids," J. Phys. A **57**, no.1, 015201 (2024).

30. L. Gavassino, M. M. Disconzi and J. Noronha, "Dispersion relations alone cannot guarantee causality," Phys. Rev. Lett. **132**, no.16, 162301 (2024).

31. R. Rougemont, J. Grefa, M. Hippert, J. Noronha, J. Noronha-Hostler, I. Portillo and C. Ratti, "Hot QCD phase diagram from holographic Einstein–Maxwell–Dilat models," Prog. Part. Nucl. Phys. **135**, 104093 (2024).

32. L. Gavassino and J. Noronha, "Relativistic bulk rheology: From neutron star mergers to viscous cosmology," Phys. Rev. D **109**, no.9, 096040 (2024).

33. R. Kumar *et al.* [MUSES], "Theoretical and experimental constraints for the equation of state of dense and hot matter," Living Rev. Rel. **27**, no.1, 3 (2024).

34. L. Gavassino, M. M. Disconzi and J. Noronha, "Universality classes of relativistic fluid dynamics: Applications," Phys. Rev. D **109**, no.9, 096041 (2024).

35. L. Gavassino, M. M. Disconzi and J. Noronha, "Universality Classes of Relativistic Fluid Dynamics: Foundations," Phys. Rev. Lett. **132**, no.22, 222302 (2024).

36. A. Sorensen, K. Agarwal, K. W. Brown, Z. Chajkecki, P. Danielewicz, C. Drischler, S. Gandolfi, J. W. Holt, M. Kaminski and C. M. Ko, *et al.* "Dense nuclear matter equation of state from heavy-ion collisions," Prog. Part. Nucl. Phys. **134**, 104080 (2024).

37. G. S. Denicol and J. Noronha, "Spectrum of the Boltzmann collision operator for $\lambda\phi^4$ theory in the classical regime," Phys. Lett. B **850**, 138487 (2024).

38. E. R. Most, A. Haber, S. P. Harris, Z. Zhang, M. G. Alford and J. Noronha, "Emergence of Microphysical Bulk Viscosity in Binary Neutron Star Postmerger Dynamics," Astrophys. J. Lett. **967**, no.1, L14 (2024).

39. N. Mullins, M. Hippert, L. Gavassino and J. Noronha, "Relativistic hydrodynamic fluctuations from an effective action: causality, stability, and the information current," Phys. Rev. D **108**, no.11, 116019 (2023).

40. N. Mullins, M. Hippert and J. Noronha, "Stochastic fluctuations in relativistic fluids: causality, stability, and the information current," Phys. Rev. D **108**, no.7, 076013 (2023).

41. C. Cartwright, M. G. Amano, M. Kaminski, J. Noronha and E. Speranza, "Convergence of hydrodynamics in rapidly spinning strongly coupled plasma", Phys.Rev.D 108, 4, 046014, (2023).

42. A. Hegade. K. R., E. R. Most, J. Noronha, H. Witek and N. Yunes, "How Do Axisymmetric Black Holes Grow Monopole and Dipole Hair?," Phys. Rev. D **107**, 10, 104047 (2023).

43. E. Speranza, F. S. Bemfica, M. M. Disconzi and J. Noronha, "Challenges in solving chiral hydrodynamics," Phys. Rev. D **107**, no.5, 054029 (2023).

44. A. V. Giannini, M. N. Ferreira, M. Hippert, D. D. Chinellato, G. S. Denicol, M. Luzum, J. Noronha, T. N. da Silva and J. Takahashi, "Assessing the ultracentral flow puzzle in hydrodynamic modeling of heavy-ion collisions," A. V. Giannini *et al.* [ExTrEMe], Phys. Rev. C **107**, no.4, 044907 (2023).

45. T. N. da Silva *et al.* [ExTrEMe Collaboration], "Prehydrodynamic evolution in large and small systems," Phys. Rev. C **107**, no.4, 044901 (2023).

46. F. S. Bemfica, M. M. Disconzi, J. Noronha and R. J. Scherrer, "Cosmological consequences of first-order general-relativistic viscous fluid dynamics," Phys. Rev. D. **107**, no.2, 023512 (2023).

47. N. Mullins, G. S. Denicol and J. Noronha, *Far-from-equilibrium kinetic dynamics of $\lambda\phi^4$ theory in an expanding universe*, Phys. Rev. D **106** 5, 056024 (2022).

48. G. S. Rocha, G. S. Denicol and J. Noronha, *Perturbative approaches in relativistic kinetic theory and the emergence of first-order hydrodynamics*, Phys. Rev. D **106** (2022) 3, 036010.

49. G. S. Rocha, M. N. Ferreira, G. S. Denicol and J. Noronha, "Determining the transport coefficients of the quark-gluon plasma using a new relaxation time approximation of the Boltzmann equation," Phys. Rev. D **106** (2022) 3, 036022.

50. J. Grefa, M. Hippert, J. Noronha, J. Noronha-Hostler, I. Portillo, C. Ratti and R. Rougemont, *Transport coefficients of the quark-gluon plasma at the critical point and across the first-order line*, Phys. Rev. D **106** (2022) 3, 034024.

51. J. Noronha, *Diverse data tighten constraints for neutron stars*, invited paper in Nature (News and Views), June 8 (2022), https://www.nature.com/articles/d41586-022-01532-2.

52. F. S. Bemfica, M. M. Disconzi and J. Noronha, *First-Order General-Relativistic Viscous Fluid Dynamics*, Phys. Rev. X **12**, no.2, 021044 (2022).

53. C. Plumberg, D. Almaalol, T. Dore, J. Noronha and J. Noronha-Hostler, *Causality violations in realistic simulations of heavy-ion collisions*, Phys. Rev. C Letters **105**, L061901 (2022).

54. J. Noronha, M. Spaliński and E. Speranza, *Transient Relativistic Fluid Dynamics in a General Hydrodynamic Frame*, Phys. Rev. Lett. **128** (2022) 25, 252302.

55. E. R. Most, J. Noronha and A. A. Philippov, *Modeling general-relativistic plasmas with collisionless moments and dissipative two-fluid magnetohydrodynamics*, Mon. Not. Roy. Astron. Soc. **514** (2022) 4, 4989-5003.

56. A. Hegade, E. R. Most, J. Noronha, H. Witek and N. Yunes, *How do spherical black holes grow monopole hair?*, Phys. Rev. D **105**, no.6, 064041 (2022).

57. R. Rougemont, W. Barreto and J. Noronha, *Hydrodynamization times of a holographic fluid far from equilibrium*, Phys. Rev. D **105**, no.4, 046009 (2022).

58. E. R. Most and J. Noronha, *Dissipative Magnetohydrodynamics for Non-Resistive Relativistic Plasmas*, Phys. Rev. D **104**, no.10, 103028 (2021).

59. E. R. Most, S. P. Harris, C. Plumberg, M. G. Alford, J. Noronha, J. Noronha-Hostler, F. Pretorius, H. Witek and N. Yunes, *Projecting the likely importance of weak-interaction-driven bulk viscosity in neutron star mergers*, Mon. Not. Roy. Astron. Soc. **509**, no.1, 1096-1108 (2021).

60. R. Rougemont, J. Noronha, W. Barreto, G. S. Denicol and T. Dore, *Violation of energy conditions and entropy production in holographic Bjorken flow*, Phys. Rev. D **104**, no.12, 126012 (2021).

61. M. Hippert, E. S. Fraga and J. Noronha, *Insights on the peak in the speed of sound of ultradense matter*, Phys. Rev. D **104**, 034011 (2021).

62. J. Grefa, J. Noronha, J. Noronha-Hostler, I. Portillo, C. Ratti and R. Rougemont, *Hot and dense quark-gluon plasma thermodynamics from holographic black holes*, Phys. Rev. D **104**, 034002 (2021).

63. G. S. Rocha, G. S. Denicol and J. Noronha, *Novel Relaxation Time Approximation to the Relativistic Boltzmann Equation*, Phys. Rev. Lett. **127**, 042301 (2021).

64. F. S. Bemfica, M. M. Disconzi, V. Hoang, J. Noronha and M. Radosz, *Nonlinear Constraints on Relativistic Fluids Far From Equilibrium*, Phys. Rev. Lett. **126**, 222301 (2021).

65. V. Dexheimer, J. Noronha, J. Noronha-Hostler, N. Yunes and C. Ratti, *Future physics perspectives on the equation of state from heavy ion collisions to neutron stars*, J. Phys. G: Nucl. Part. Phys. **48**, 073001 (2021), invited topical review.

66. T. Nunes da Silva, D. Chinellato, M. Hippert, W. Serenone, J. Takahashi, G. S. Denicol, M. Luzum and J. Noronha, *Pre-hydrodynamic evolution and its signatures in final-state heavy-ion observables*, Phys. Rev. C **103**, 054906 (2021).

67. G. S. Denicol and J. Noronha, *Connecting far-from-equilibrium hydrodynamics to resummed transport coefficients and attractors*, Nucl. Phys. A **1005**, 121748 (2021).

68. G. S. Denicol and J. Noronha, *Fluid dynamics far-from-equilibrium: a concrete example*, Nucl. Phys. A **1005**, 121996 (2021).

69. J. Sousa, J. Noronha and M. Luzum, *System response to the initial energy-momentum tensor in relativistic heavy-ion collisions*, Nucl. Phys. A **1005**, 121890 (2021).

70. M. Hippert, D. Dobrigkeit Chinellato, M. Luzum, J. Noronha, T. Nunes da Silva and J. Takahashi, *Momentum-dependent flow fluctuations as a hydrodynamic response to initial geometry*, Nucl. Phys. A **1005**, 121982 (2021).

71. M. Hippert, J. G. P. Barbon, D. Dobrigkeit Chinellato, M. Luzum, J. Noronha, T. Nunes da Silva, W. M. Serenone and J. Takahashi, *Probing the structure of the initial state of heavy-ion collisions with p_T-dependent flow fluctuations*, Phys. Rev. C **102** 6, 064909 (2020).

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