Saulo Albuquerque

Curriculum Vitae

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Personal Information

Name: Saulo Soares de Albuquerque Filho
Nationality: Brazilian

Present position

Postdoc Researcher.
Research project: BOOSTING INFERENCE FOR GRAVITATIONAL-WAVE ASTROPHYSICS (BIGA).
UNIVERSITY OF URBINO CARLOS BO, Urbino, Italy.
Starting date: November 15th, 2024.
Supervision: Prof. Dr. Gianluca maria Guidi.
Funding: Ministry of University and Research (MUR) - Italy.

Scientific work

My research interests are focused on phenomenological and theoretical astrophysics of compact objects and gravitational waves. I have a particular interest in theoretical approaches based on compact objects' perturbation theory.
I am also interested in lab-controlled analog gravity models, mainly sonic holes or quantum vortices in Bose-Einstein condensates.

Education

August 2020– **Doctor of Philosophy**.
July 2024   Ph.D. in Physics: UFPB, João Pessoa, Brazil
Visiting Ph.D. Fellow (SWE - Sandwich Doctorate): UNIVERSITY OF TÜBINGEN,
Theoretical Astrophysics, IAAT, University of Tübingen, D-72076 Tübingen, Germany.
Supervisors:
    Internal: Prof. Valdir Barbosa Bezerra (UFPB).
    External: Prof. Kostas D. Kokkotas (University of Tübingen, Tübingen, Germany).
Co-Supervisors:
    Internal: Prof. Iarley Pereira Lobo (UFPB).
    External: Dr. Sebastian H. Völkel. (Max Planck Institute for Gravitational Physics - Albert Einstein Institute, Potsdam, Germany)
Title of the Thesis: *Direct and Inverse Problem for Analog Gravity Systems*.
Grade Point Average: **9.53**/10

August 2018– **Master of Science**.
July 2020   M.Sc. in Physics: UFPB, João Pessoa, Brazil
Supervisor: Prof. Valdir Barbosa Bezerra.
Dissertation Title: *Dirac Equation in a Class of Black Holes with a Cloud of Strings*.
Grade Point Average: **9.71**/10

April 2014– July 2018	**Bachelor's Degree in Physics**. B. of Sc. in Physics: UFPB, João Pessoa, Brazil Grade Point Average: **9.06**/10

Professional Experience

November 2024– October 2025	**Postdoc Researcher**, Boosting Inference for Gravitational-wave Astrophysics (BIGA). University of Urbino Carlos Bo, Urbino, Italy Supervision: Prof. Dr. Gianluca maria Guidi. Funding: Ministry of University and Research (MUR) - Italy.

Conferences

29.09.2023	III SBF SPRING MEETING (Brazilian Physical Society). Oral presentation.
12.09.2023	Week of Physics (UFPB). Oral presentation.
17.07.2023	Amaldi15 - Premier International Conference on Gravitational Waves. Poster presentation.
20.02.2023	Winter School of Theoretical Physics and third COST Action 18108 Training School. Jelenia Góra - Poland. Oral presentation.
25.01.2023	TAT - Einstein Seminar. Universität Tübingen. Oral presentation.
05.11.2018	XXVI Meeting of Scientific Initiation of the UFPB (2018). Oral presentation.
26.10.2017	First School of Physics of the UFF (2017). Oral presentation.
10.11.2016	XXIV Meeting of Scientific Initiation of the UFPB (2016). Oral presentation.

Funding

November 2024– October 2025	**Postdoc Research Scientist (Boosting Inference for Gravitational-wave Astrophysics)**, Ministry of University and Research (MUR) - Italy, University of Urbino Carlo Bo - Italy. Contract
December 2022– June 2023	**Visiting Split-PhD Fellowship (Sandwich Doctorate Fellowship)**, National Council for Scientific and Technological Development-CNPq, TAT - IAAT - Univesity of Tübingen - Germany.
July 2023– December 2024	**Co-funded Research Grants – Short-Term Grant - One-Semester Grants for Doctoral Candidates**, DAAD, Germany, TAT - IAAT - Univesität Tübingen - Germany. *Awarded but not used by the applicant.*
September 2023– March 2024	**Doctoral Dissertation Research Award (DDRA) Fellowship**, Fulbright Commission, United States of America, University of Illinois Urbana-Champaign. *Awarded but declined by the applicant.*
August 2020– July 2024	**Doctorate Degree Fellowship**, Coordination of Superior Level Staff Improvement-CAPES, Brazil, *The Direct and Inverse Problem for Analog Models of Black Holes and Exotic Compact Objects*.

August 2018– July 2020	**Master's Degree Fellowship**, NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT-CNPQ, Brazil, *Dirac Equation in a class of Black Holes with a Cloud of Strings.*
July 2017– June 2018	**Scientific Initiation Program Scholarship (PIBIC)**, NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT-CNPQ, Brazil, *Black Holes with Cloud of Strings in General Relativity.*
July 2016– June 2017	**Scientific Initiation Program Scholarship (PIBIC)**, NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT-CNPQ, Brazil, *Structure Formation in neo-Newtonian Cosmology.*
July 2015– June 2016	**Scientific Initiation Program Scholarship (PIBIC)**, NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT-CNPQ, Brazil, *On Some Aspects of Newtonian Cosmology.*

Languages

Portuguese	**Native language**
English	**Fluent** TOEFL iBT® TEST'S SCORES: 99/120*; Taken in: July 2022.*

Teaching activity

Federal University of Paraíba (UFPB)

2023: Teaching Assistant in General Physics 3.
2021: Teaching Assistant in General Physics 1.
2019: Teaching Assistant in General Physics 1.

Published Research Articles

1. **Inverse problem of analog gravity systems. II. Rotation and energy-dependent boundary conditions**,

   Saulo Albuquerque, Sebastian H. Völkel, Kostas D. Kokkotas, V. B. Bezerra.
   Phys. Rev. D 110, 064084 – Published 25 December 2024, https://doi.org/10.1103/PhysRevD.110.064084.
   arXiv:2406.16670 [gr-qc]. https://doi.org/10.48550/arXiv.2406.16670.

2. **Inverse problem in energy-dependent potentials using semiclassical methods**,

   Saulo Albuquerque, Sebastian H. Völkel, Kostas D. Kokkotas.
   Phys.Rev.D 109, 096014 – Published 13 May 2024, https://doi.org/10.1103/PhysRevD.109.096014.
   arXiv:2404.11478 [hep-ph]. https://arxiv.org/abs/2404.11478.

3. **Inverse problem of analog gravity systems**,

   Saulo Albuquerque, Sebastian H. Völkel, Kostas D. Kokkotas, V. B. Bezerra.
   Phys. Rev. D 108, 124053 – Published 19 December 2023, https://doi.org/10.1103/PhysRevD.108.124053.

arXiv:2309.11168 [gr-qc]. `https://arxiv.org/abs/2309.11168`.

4. **Massless Dirac Perturbations in a Consistent Model of Loop Quantum Gravity Black Holes: Quasinormal Modes and Particle Emission Rates**,

   Saulo Albuquerque, V. B. Bezerra, I. P. Lobo.
   IOP Publishing 2023, Classical and Quantum Gravity, Volume 40, Number 17,
   `https://dx.doi.org/10.1088/1361-6382/ace7a8`.

5. **On the Radial Solutions of the Dirac Equation in the Kerr-Newman Black Hole Surrounded by a Cloud of Strings**,

   Saulo Albuquerque, V. B. Bezerra, Jefferson Morais Toledo.
   Published in: Axioms 12 (2023) 2, 187.
   `https://doi.org/10.3390/axioms12020187`.

6. **Quantum Configuration and Phase Spaces: Finsler and Hamilton Geometries**,

   Saulo Albuquerque, V. B. Bezerra, I. P. Lobo, G. Macedo, Pedro H. Morais, Ernesto Rodrigues, Luis C. N. Santos, Gislaine Varão.
   Physics 2023, 5(1), 90-115.
   `https://doi.org/10.3390/physics5010008`.

Link to ORCID

`https://orcid.org/0000-0003-2911-9358`