João Nuno Prata

Professor Auxiliar
Department of Mathematics (ISTA)

Contacts

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Research Interests

Functional Analysis: time-frequency analysis, pseudo-differential operators, uncertainty principles

Mathematical Physics: Quantum information of continuous variables, quantum mechanics in phase-space

Academic Qualifications

University/Institution	Type	Degree	Period
University of Durham	PhD	Física-Matemática	1998
Universidade de Lisboa - Instituto Superior Tecnico	Licenciate	Engenharia Física-Tecnológica	1993

Teaching Activities

Teaching Year	Sem.	Course Name	Degree(s)	Coord.
2025/2026	2º	Calculus II	Bachelor Degree in Telecommunications and Computer Engineering;	No
2025/2026	1º	Algebra	Bachelor Degree in Computer Science and Business Management;	Yes
2024/2025	2º	Calculus II	Bachelor Degree in Telecommunications and Computer Engineering;	No
2024/2025	1º	Algebra	Bachelor Degree in Computer Science and Business Management;	Yes

Total Citations

Web of Science®	1085
Scopus	1092

Publications

- **Scientific Journals**

- Scientific journal paper

1	Dias, N. C., Luef, F. & Prata, J. N. (2025). On Wigdersons' approach to the uncertainty principle. Journal de Mathématiques Pures et Appliquées. 198 - Times Cited Scopus: 1 - Times Cited Google Scholar: 4
2	Dias, N. C., Jorge, C. & Prata, J.N. (2024). Vibration modes of the Euler–Bernoulli beam equation with singularities. Journal of Differential Equations. 381, 185-208 - Times Cited Web of Science®: 4 - Times Cited Scopus: 3 - Times Cited Google Scholar: 4
3	Dias, N. C. , de Gosson, M. & Prata, J.N. (2024). On orthogonal projections of symplectic balls. Comptes Rendus. Mathématique. 362, 217-227 - Times Cited Google Scholar: 5
4	Dias, N. C., de Gosson, M. & Prata, J.N. (2024). A metaplectic perspective of uncertainty principles in the linear canonical transform domain. Journal of Functional Analysis. 287 (4), 110494 - Times Cited Web of Science®: 12 - Times Cited Scopus: 10 - Times Cited Google Scholar: 21
5	Nuno Costa Dias, Dias, N.C. , Cristina Jorge & Prata, J.N. (2023). An existence and uniqueness result about algebras of Schwartz distributions. Monatshefte für Mathematik. 203 (1), 43-61 - Times Cited Web of Science®: 3 - Times Cited Scopus: 3 - Times Cited Google Scholar: 5

6	Nuno Costa Dias, Dias, N.C. , Prata, J.N. & Nenad Teofanov (2023). Gabor products and a phase space approach to nonlinear analysis. Analysis and Applications. 21 (06), 1417-1446
7	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2023). On a Recent Conjecture by Z. Van Herstraeten and N. J. Cerf for the Quantum Wigner Entropy. Annales Henri Poincaré. 24 (7), 2341-2362 - Times Cited Web of Science®: 8 - Times Cited Scopus: 8 - Times Cited Google Scholar: 10
8	Nuno Costa Dias, Dias, N.C. , Franz Luef & Prata, J.N. (2022). Uncertainty principle via variational calculus on modulation spaces. Journal of Functional Analysis. 283 (8), 109605 - Times Cited Web of Science®: 10 - Times Cited Scopus: 10 - Times Cited Google Scholar: 14
9	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson & Prata, J.N. (2021). Partial traces and the geometry of entanglement: Sufficient conditions for the separability of Gaussian states. Reviews in Mathematical Physics. 34 (03) - Times Cited Web of Science®: 4 - Times Cited Scopus: 4 - Times Cited Google Scholar: 6
10	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2021). Boundaries and profiles in the Wigner formalism. Journal of Computational Electronics. 20 (6), 2020-2038 - Times Cited Web of Science®: 3 - Times Cited Scopus: 3 - Times Cited Google Scholar: 3
11	Nuno Costa Dias, Dias, N.C. , Cristina Jorge & Prata, J.N. (2020). Ordinary Differential Equations with Singular Coefficients: An Intrinsic Formulation with Applications to the Euler–Bernoulli Beam Equation. Journal of Dynamics and Differential Equations. 33 (2), 593-619 - Times Cited Web of Science®: 3 - Times Cited Scopus: 3 - Times Cited Google Scholar: 5
12	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2019). Uncertainty relations for a non-canonical phase-space noncommutative algebra. Journal of Physics A: Mathematical and Theoretical. 52 (22), 225203 - Times Cited Web of Science®: 2 - Times Cited Scopus: 2 - Times Cited Google Scholar: 2
13	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2019). Quantum mappings acting by coordinate transformations on Wigner distributions. Revista Matemática Iberoamericana. 35 (2), 317-337 - Times Cited Web of Science®: 3 - Times Cited Scopus: 2 - Times Cited Google Scholar: 8
14	Nuno Costa Dias, Dias, N.C. , Cristina Jorge & Prata, J.N. (2019). Ordinary differential equations with point interactions: An inverse problem. Journal of Mathematical Analysis and Applications. 471 (1-2), 53-72 - Times Cited Web of Science®: 3 - Times Cited Scopus: 3 - Times Cited Google Scholar: 3

15	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson & Prata, J.N. (2018). A Refinement of the Robertson–Schrödinger Uncertainty Principle and a Hirschman–Shannon Inequality for Wigner Distributions. Journal of Fourier Analysis and Applications. 25 (1), 210-241 - Times Cited Web of Science®: 20 - Times Cited Scopus: 19 - Times Cited Google Scholar: 25
16	J. S. Ben-Benjamin, L. Cohen, Nuno Costa Dias, Dias, N.C. , P. Loughlin & Prata, J.N. (2018). What is the Wigner Function Closest to a Given Square Integrable Function?. SIAM Journal on Mathematical Analysis. 50 (5), 5161-5197 - Times Cited Web of Science®: 2 - Times Cited Scopus: 3 - Times Cited Google Scholar: 7
17	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2018). Wigner functions on non-standard symplectic vector spaces. Journal of Mathematical Physics. 59 (1) - Times Cited Web of Science®: 2 - Times Cited Scopus: 2 - Times Cited Google Scholar: 2
18	Nuno Costa Dias, Dias, N.C. , Cristina Jorge & Prata, J.N. (2016). One-dimensional Schrödinger operators with singular potentials: A Schwartz distributional formulation. Journal of Differential Equations. 260 (8), 6548-6580 - Times Cited Web of Science®: 10 - Times Cited Scopus: 10 - Times Cited Google Scholar: 14
19	Catarina Bastos, Alex E. Bernardini, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2016). Bell operator and Gaussian squeezed states in noncommutative quantum mechanics. Physical Review D. 93 (10) - Times Cited Web of Science®: 23 - Times Cited Scopus: 22 - Times Cited Google Scholar: 26
20	Catarina Bastos, Alex E. Bernardini, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2015). Phase-space noncommutative extension of the Robertson-Schrödinger formulation of Ozawa's uncertainty principle. Physical Review D. 91 (6) - Times Cited Web of Science®: 25 - Times Cited Scopus: 25 - Times Cited Google Scholar: 28
21	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson & Prata, J.N. (2014). Maximal covariance group of Wigner transforms and pseudo-differential operators. Proceedings of the American Mathematical Society. 142 (9), 3183-3192 - Times Cited Web of Science®: 7 - Times Cited Scopus: 12 - Times Cited Google Scholar: 17
22	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson & Prata, J.N. (2014). A symplectic extension map and a new Shubin class of pseudo-differential operators. Journal of Functional Analysis. 266 (6), 3772-3796 - Times Cited Web of Science®: 2 - Times Cited Scopus: 4 - Times Cited Google Scholar: 3
23	Catarina Bastos, Alex E. Bernardini, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2014). Phase-space noncommutative formulation of Ozawa's uncertainty principle. Physical Review D. 90 (4) - Times Cited Web of Science®: 33 - Times Cited Scopus: 33 - Times Cited Google Scholar: 37

24	Catarina Bastos, Alex E. Bernardini, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2014). Robertson-Schrödinger-type formulation of Ozawa's noise-disturbance uncertainty principle. Physical Review A. 89 (4) - Times Cited Web of Science®: 22 - Times Cited Scopus: 21 - Times Cited Google Scholar: 26
25	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson & Prata, J.N. (2013). METAPLECTIC FORMULATION OF THE WIGNER TRANSFORM AND APPLICATIONS. Reviews in Mathematical Physics. 25 (10), 1343010 - Times Cited Web of Science®: 10 - Times Cited Scopus: 10 - Times Cited Google Scholar: 12
26	Catarina Bastos, Alex E. Bernardini, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2013). Entanglement due to noncommutativity in phase space. Physical Review D. 88 (8) - Times Cited Web of Science®: 38 - Times Cited Scopus: 35 - Times Cited Google Scholar: 42
27	Catarina Bastos, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2013). NONCOMMUTATIVE GRAPHENE. International Journal of Modern Physics A. 28 (16), 1350064 - Times Cited Web of Science®: 40 - Times Cited Scopus: 40 - Times Cited Google Scholar: 57
28	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson, Franz Luef & Prata, J.N. (2012). Quantum mechanics in phase space: the Schrödinger and the Moyal representations. Journal of Pseudo-Differential Operators and Applications. 3 (4), 367-398 - Times Cited Web of Science®: 11 - Times Cited Scopus: 12 - Times Cited Google Scholar: 19
29	Catarina Bastos, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2012). Violation of the Robertson-Schrödinger uncertainty principle and noncommutative quantum mechanics. Physical Review D. 86 (10) - Times Cited Web of Science®: 28 - Times Cited Scopus: 28
30	Catarina Bastos, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2012). NONCOMMUTATIVE QUANTUM MECHANICS AND QUANTUM COSMOLOGY. International Journal of Modern Physics A. 24 (15), 2741-2752 - Times Cited Web of Science®: 25 - Times Cited Scopus: 27 - Times Cited Google Scholar: 36
31	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson, Franz Luef & Prata, J.N. (2011). A pseudo-differential calculus on non-standard symplectic space; Spectral and regularity results in modulation spaces. Journal de Mathématiques Pures et Appliquées. 96 (5), 423-445 - Times Cited Web of Science®: 20 - Times Cited Scopus: 21 - Times Cited Google Scholar: 30
32	Catarina Bastos, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2011). Noncanonical phase-space noncommutativity and the Kantowski-Sachs singularity for black holes. Physical Review D. 84 (2) - Times Cited Web of Science®: 33 - Times Cited Scopus: 32

33	Catarina Bastos, Orfeu Bertolami, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2011). Entropic gravity, phase-space noncommutativity and the equivalence principle. Classical and Quantum Gravity. 28 (12), 125007 - Times Cited Web of Science®: 46 - Times Cited Scopus: 46 - Times Cited Google Scholar: 54
34	Nuno Costa Dias, Dias, N.C. , Andrea Posilicano & Prata, J.N. (2011). Self-adjoint, globally defined Hamiltonian operators for systems with boundaries. Communications on Pure and Applied Analysis. 10 (6), 1687-1706 - Times Cited Web of Science®: 16 - Times Cited Scopus: 13 - Times Cited Google Scholar: 19
35	Prata, J.N. & Nuno Costa Dias (2011). ENVIRONMENT-INDUCED DECOHERENCE IN NONCOMMUTATIVE QUANTUM MECHANICS. International Journal of Quantum Information. 05 (01n02), 287-292 - Times Cited Web of Science®: 1 - Times Cited Scopus: 1 - Times Cited Google Scholar: 1
36	Nuno Costa Dias, Dias, N.C. , Maurice de Gosson, Franz Luef & Prata, J.N. (2010). A deformation quantization theory for noncommutative quantum mechanics. Journal of Mathematical Physics. 51 (7) - Times Cited Web of Science®: 19 - Times Cited Scopus: 19 - Times Cited Google Scholar: 30
37	Catarina Bastos, Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2010). Wigner Measures in Noncommutative Quantum Mechanics. Communications in Mathematical Physics. 299 (3), 709-740 - Times Cited Web of Science®: 39 - Times Cited Scopus: 39 - Times Cited Google Scholar: 54
38	Catarina Bastos, Orfeu Bertolami, Dias, N.C. , Nuno Costa Dias & Prata, J.N. (2010). Singularity problem and phase-space noncanonical noncommutativity. Physical Review D. 82 (4) - Times Cited Web of Science®: 30 - Times Cited Scopus: 27 - Times Cited Google Scholar: 39
39	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2010). A global, dynamical formulation of quantum confined systems. Proceedings of the Estonian Academy of Sciences. 59 (4), 290 - Times Cited Web of Science®: 1 - Times Cited Scopus: 1 - Times Cited Google Scholar: 1
40	Catarina Bastos, Orfeu Bertolami, Dias, N.C. & Prata, J.N. (2009). Black holes and phase-space noncommutativity. Physical Review D. 80 (12) - Times Cited Web of Science®: 55 - Times Cited Scopus: 49 - Times Cited Google Scholar: 66
41	Dias, N.C. & Prata, J.N. (2009). A multiplicative product of distributions and a class of ordinary differential equations with distributional coefficients. Journal of Mathematical Analysis and Applications. 359 (1), 216-228 - Times Cited Web of Science®: 7 - Times Cited Scopus: 7 - Times Cited Google Scholar: 7

42	Nuno Costa Dias & Prata, J.N. (2009). The Narcowich-Wigner spectrum of a pure state. Reports on Mathematical Physics. 63 (1), 43-54 - Times Cited Web of Science®: 15 - Times Cited Scopus: 17 - Times Cited Google Scholar: 29
43	Nuno Costa Dias, Dias, N.C. & Prata, J.N. (2009). Exact master equation for a noncommutative Brownian particle. Annals of Physics. 324 (1), 73-96 - Times Cited Web of Science®: 23 - Times Cited Scopus: 22 - Times Cited Google Scholar: 30
44	Catarina Bastos, Orfeu Bertolami, Dias, N.C. & Prata, J.N. (2008). Weyl–Wigner formulation of noncommutative quantum mechanics. Journal of Mathematical Physics. 49 (7) - Times Cited Web of Science®: 113 - Times Cited Scopus: 113 - Times Cited Google Scholar: 171
45	Catarina Bastos, Orfeu Bertolami, Dias, N.C. & Prata, J.N. (2008). Phase-space noncommutative quantum cosmology. Physical Review D. 78 (2) - Times Cited Web of Science®: 106 - Times Cited Scopus: 109 - Times Cited Google Scholar: 137
46	Dias, N.C. & Prata, J.N. (2007). Features of Moyal trajectories. Journal of Mathematical Physics. 48 (1) - Times Cited Web of Science®: 17 - Times Cited Scopus: 17 - Times Cited Google Scholar: 29
47	Prata, J.N. & Dias, N.C. (2007). Deformation quantization of confined systems. International Journal of Quantum Information. 5 (1), 257-263 - Times Cited Web of Science®: 5 - Times Cited Scopus: 5 - Times Cited Google Scholar: 5
48	Nuno Costa Dias, A. Mikovi & Prata, J.N. (2006). Coherent states expectation values as semiclassical trajectories. Journal of Mathematical Physics. 47 (8) - Times Cited Web of Science®: 10 - Times Cited Scopus: 12 - Times Cited Google Scholar: 17
49	Nuno Costa Dias & Prata, J.N. (2006). Comment on “On infinite walls in deformation quantization”. Annals of Physics. 321 (2), 495-502 - Times Cited Web of Science®: 10 - Times Cited Scopus: 10 - Times Cited Google Scholar: 14
50	Nuno Costa Dias & Prata, J.N. (2005). Stargenfunctions, generally parametrized systems and a causal formulation of phase space quantum mechanics. Journal of Mathematical Physics. 46 (7)
51	Nuno Costa Dias & Prata, J.N. (2004). Time dependent transformations in deformation quantization. Journal of Mathematical Physics. 45 (3), 887-901 - Times Cited Web of Science®: 7 - Times Cited Scopus: 7 - Times Cited Google Scholar: 10

52	Nuno Costa Dias & Prata, J.N. (2004). Admissible states in quantum phase space. Annals of Physics. 313 (1), 110-146 - Times Cited Web of Science®: 53 - Times Cited Scopus: 59 - Times Cited Google Scholar: 75
53	Nuno Costa Dias & Prata, J.N. (2004). Formal solutions of stargenvalue equations. Annals of Physics. 311 (1), 120-151 - Times Cited Web of Science®: 17 - Times Cited Scopus: 20 - Times Cited Google Scholar: 27
54	Nuno Costa Dias & Prata, J.N. (2002). Bohmian trajectories and quantum phase space distributions. Physics Letters A. 302 (5-6), 261-272 - Times Cited Web of Science®: 19 - Times Cited Scopus: 22 - Times Cited Google Scholar: 34
55	Nuno Costa Dias & Prata, J.N. (2002). Wigner functions with boundaries. Journal of Mathematical Physics. 43 (10), 4602-4627 - Times Cited Web of Science®: 35 - Times Cited Scopus: 32 - Times Cited Google Scholar: 46
56	Nuno Costa Dias & Prata, J.N. (2001). Causal interpretation and quantum phase space. Physics Letters A. 291 (6), 355-366 - Times Cited Web of Science®: 9 - Times Cited Scopus: 10 - Times Cited Google Scholar: 17
57	Nuno Costa Dias & Prata, J.N. (2001). Generalized Weyl–Wigner map and Vey quantum mechanics. Journal of Mathematical Physics. 42 (12), 5565-5579 - Times Cited Web of Science®: 14 - Times Cited Scopus: 14 - Times Cited Google Scholar: 21
58	Prata, J.N. (2000). Boundary TBA equations for a non-diagonal theory. Nuclear Physics B. 565 (3), 641-652
59	Prata, J.N. (1998). Reflection factors for the principal chiral model. Physics Letters B. 438 (1-2), 115-122 - Times Cited Web of Science®: 2 - Times Cited Scopus: 3 - Times Cited Google Scholar: 4
60	Prata, J.N. (1997). The super-Liouville equation on the half-line. Physics Letters B. 405 (3-4), 271-279 - Times Cited Web of Science®: 10 - Times Cited Scopus: 10 - Times Cited Google Scholar: 14