

Publications in refereed journals

Francisco Javier Correa Santander

56 publications WoS, one under review, and 4 proceedings in peer review journal

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57. **“Integrable black hole dynamics in the asymptotic structure of AdS_3 ”**
M. Cárdenas, F. Correa, M. Pino,
[arXiv:2504.20292](#)
56. **“Coupling and particle number intertwiners in the Calogero model”**
F. Correa, L. Inzunza, O. Lechtenfeld,
[arXiv:2504.01177](#), *JHEP*, *in press*.
55. **“SUSY design of smooth quantum rings in graphene”**
F. Correa, L. Inzunza, V. Jakubsky,
[arXiv:2501.08422](#), *Physical Review Research*, *in press*.
54. **“The Carrollian limit of ModMax electrodynamics”**
F. Correa, A. Hernández, J. Oliva,
Journal of High Energy Physics **2024**, 8 (2024).
53. **“Lorentzian quantum wells in graphene: the role of shape invariance in zero-energy states trapping”**
F. Correa, L. Inzunza, V. Jakubsky,
Physical Review B **110**, 075120 (2024).
52. **“Integrable extensions of two-center Coulomb systems”**
F. Correa, O. Quintana,
Physical Review D **109**, 085011 (2024).
51. **“A Casimir operator for the Calogero W algebra”**
F. Correa, G. Leal, O. Lechtenfeld, I. Marquette,
Journal of Physics A: Mathematical and Theoretical **57**, 085203 (2024).
50. **“Integrability meets the charged relativistic particle”**
F. Correa, J. López-Sarrión,
Physics Letters B **856**, 138883 (2024).
49. **“Infinite affine, hyperbolic and Lorentzian Weyl groups with their associated Calogero models”**
F. Correa, A. Fring and O. Quintana,
Journal of Physics A: Mathematical and Theoretical **57**, 055203 (2024).
48. **“Non-Hermitian superintegrable systems”**
F. Correa, L. Inzunza and I. Marquette,
Journal of Physics A: Mathematical and Theoretical **56**, 345207 (2023).
47. **“Moduli spaces for PT-regularized solitons”**
F. Correa, A. Fring and T. Taira,
Journal of High Energy Physics **2022**, 109 (2022).

46. **“Stability in integrable nonlocal nonlinear equations”**
J. Cen, F. Correa, A. Fring and T. Taira,
[Physics Letters A **4 35**, 128060 \(2022\).](#)
45. **“Linearly stable and unstable complex soliton solutions with real energies in the Bullough-Dodd model”**
F. Correa, A. Fring and T. Taira,
[Nuclear Physics B **979**, 115783 \(2022\).](#)
44. **“ N -dimensional Smorodinsky-Winternitz model and related higher rank quadratic algebra $SW(N)$ ”**
F. Correa, M. Fazlul Hoque, I. Marquette, Y-Z. Zhang,
[Journal of Physics A: Mathematical and Theoretical **54**, 395201 \(2021\).](#)
43. **“Integrable Systems and Spacetime Dynamics”**
M. Cárdenas, F. Correa, K. Lara, M. Pino,
[Physical Review Letters **127**, 161601 \(2021\).](#)
42. **“Complex BPS Skyrmions with real energy”**
F. Correa, A. Fring and T. Taira,
[Nuclear Physics B **971**, 115516 \(2021\).](#)
41. **“Integrability, intertwiners and non-linear algebras in Calogero models”**
F. Carrillo-Morales, F. Correa and O. Lechtenfeld,
[Journal of High Energy Physics **2021**, 163 \(2021\).](#)
40. **“Polynomial algebras from $su(3)$ and the generic model on the two sphere”**
F. Correa, M. A. del Olmo, I. Marquette and J. Negro,
[Journal of Physics A: Mathematical and Theoretical **54**, 015205 \(2021\).](#)
39. **“Super-Klein tunneling of Dirac fermions through electrostatic gratings in graphene”**
A. Contreras-Astorga, F. Correa and V. Jakubsky,
[Physical Review B **102**, 115429 \(2020\).](#)
38. **“Nonlocal gauge equivalence: Hirota versus extended continuous Heisenberg and Landau-Lifschitz equation”**
J. Cen, F. Correa and A. Fring.
[Journal of Physics A: Mathematical and Theoretical **53**, no.19, 195201 \(2020\).](#)
37. **“Microscopic entropy of higher-dimensional nonminimally dressed Lifshitz black holes”**
E. Ayón-Beato, M. Bravo-Gaete, F. Correa, M. Hassaine and M. M. Juárez-Aubry.
[Physical Review D **100**, 044024 \(2019\).](#)
36. **“ $\mathcal{PT}$ deformation of Calogero-Sutherland models”**
F. Correa and O. Lechtenfeld.
[Journal of High Energy Physics **1905**, 166 \(2019\).](#)
35. **“Integrable nonlocal Hirota equations”**
J. Cen, F. Correa and A. Fring.
[Journal of Mathematical Physics **60**, 081508 \(2019\).](#)
34. **“ $\mathcal{PT}$ deformation of angular Calogero models”**
F. Correa and O. Lechtenfeld.
[Journal of High Energy Physics **1711**, 122 \(2017\).](#)
33. **“Degenerate multi-solitons in the sine-Gordon equation”**
J. Cen, F. Correa and A. Fring.
[Journal of Physics A: Mathematical and Theoretical **50**, no. 43, 435201 \(2017\).](#)

32. **“Confluent Crum-Darboux transformations in Dirac Hamiltonians with $\mathcal{PT}$ -symmetric Bragg gratings”**
F. Correa and V. Jakubsky.
[Physical Review A **95**, no. 3, 033807 \(2017\).](#)
31. **“Time-delay and reality conditions for complex solitons”**
J. Cen, F. Correa and A. Fring.
[Journal of Mathematical Physics **58**, 032901 \(2017\).](#)
30. **“Regularized degenerate multi-solitons”**
F. Correa and A. Fring.
[Journal of High Energy Physics **1609**, 008 \(2016\).](#)
29. **“Spherical Calogero model with oscillator/Coulomb potential: quantum case”**
F. Correa, T. Hakobyan, O. Lechtenfeld and A. Nersessian.
[Physical Review D **93**, no. 12, 125009 \(2016\).](#)
28. **“Spherical Calogero model with oscillator/Coulomb potential: classical case”**
F. Correa, T. Hakobyan, O. Lechtenfeld and A. Nersessian.
[Physical Review D **93**, no. 12, 125008 \(2016\).](#)
27. **“The tetrahexahedric angular Calogero model”**
F. Correa and O. Lechtenfeld.
[Journal of High Energy Physics **1510**, 191 \(2015\).](#)
26. **“ $\mathcal{PT}$ -symmetric invisible defects and confluent Darboux-Crum transformations”**
F. Correa, V. Jakubsky and M. S. Plyushchay.
[Physical Review A **92**, no. 2, 023839 \(2015\).](#)
25. **“First law and anisotropic Cardy formula for three-dimensional Lifshitz black holes”**
E. Ayón-Beato, M. Bravo-Gaete, F. Correa, M. Hassaine, M. M. Juárez-Aubry and J. Oliva.
[Physical Review D **91**, no. 6, 064006 \(2015\), Addendum: \[Phys. Rev. D **96**, no. 4, 049903 \(2017\)\].](#)
24. **“Soliton defects in one-gap periodic system and exotic supersymmetry”**
A. Arancibia, F. Correa, V. Jakubský, J. Mateos Guilarte and M. S. Plyushchay.
[Physical Review D **90**, no. 12, 125041 \(2014\).](#)
23. **“Exact multisoliton solutions in the four-dimensional Skyrme model”**
F. Canfora, F. Correa and J. Zanelli.
[Physical Review D **90**, 085002 \(2014\).](#)
22. **“Twisted kinks, Dirac transparent systems and Darboux transformations”**
F. Correa and V. Jakubsky.
[Physical Review D **90**, no. 12, 125003 \(2014\).](#)
21. **“Black holes in New Massive Gravity dressed by a (non)minimally coupled scalar field”**
F. Correa, M. Hassaine and J. Oliva.
[Physical Review D **89**, no. 12, 124005 \(2014\).](#)
20. **“Nonlinear supersymmetry in the quantum Calogero model”**
F. Correa, O. Lechtenfeld and M. Plyushchay.
[Journal of High Energy Physics **1404**, 151 \(2014\).](#)
19. **“Thermodynamics of Lovelock black holes with a nonminimal scalar field”**
F. Correa and M. Hassaine.
[Journal of High Energy Physics **1402**, 014 \(2014\).](#)
18. **“Finite-gap twists of carbon nanotubes and an emergent hidden supersymmetry”**
F. Correa and V. Jakubsky.
[Physical Review D **87**, no. 8, 085019 \(2013\).](#)

17. **“Rotating hairy black hole and its microscopic entropy in three spacetime dimensions”**
F. Correa, A. Faúndez and C. Martínez.
[Physical Review D **87**, no. 2, 027502 \(2013\).](#)
16. **“Exact meron Black Holes in four dimensional $SU(2)$ Einstein-Yang-Mills theory”**
F. Canfora, F. Correa, A. Giacomini and J. Oliva.
[Physics Letters B **722**, 364 \(2013\).](#)
15. **“Spectral singularities in $\mathcal{PT}$ -symmetric periodic finite-gap systems”**
F. Correa and M. S. Plyushchay.
[Physical Review D **86**, 085028 \(2012\).](#)
14. **“Self-isospectral tri-supersymmetry in $\mathcal{PT}$ -symmetric quantum systems with pure imaginary periodicity”**
F. Correa and M. S. Plyushchay.
[Annals of Physics **327**, 1761 \(2012\).](#)
13. **“Hairy Black Hole Entropy and the Role of Solitons in Three Dimensions”**
F. Correa, C. Martinez and R. Troncoso.
[Journal of High Energy Physics **1202**, 136 \(2012\).](#)
12. **“Scalar solitons and the microscopic entropy of hairy black holes in three dimensions”**
F. Correa, C. Martinez and R. Troncoso.
[Journal of High Energy Physics **1101**, 034 \(2011\).](#)
11. **“Supersymmetries of the spin-1/2 particle in the field of magnetic vortex, and anyons”**
F. Correa, H. Falomir, V. Jakubsky and M. S. Plyushchay.
[Annals of Physics **325**, 2653 \(2010\).](#)
10. **“Hidden superconformal symmetry of spinless Aharonov-Bohm system”**
F. Correa, H. Falomir, V. Jakubsky and M. S. Plyushchay.
[Journal of Physics A: Mathematical and Theoretical **43**, 075202 \(2010\).](#)
9. **“The Bogoliubov/de Gennes system, the AKNS hierarchy, and nonlinear quantum mechanical supersymmetry”**
F. Correa, G. V. Dunne and M. S. Plyushchay.
[Annals of Physics **324**, 2522 \(2009\).](#)
8. **“Aharonov-Bohm effect on AdS_2 and nonlinear supersymmetry of reflectionless Pöschl-Teller system”**
F. Correa, V. Jakubsky and M. S. Plyushchay.
[Annals of Physics **324**, 1078 \(2009\).](#)
7. **“Finite-gap systems, tri-supersymmetry and self-isospectrality”**
F. Correa, V. Jakubsky and M. S. Plyushchay.
[J. Phys. A **41**, 485303 \(2008\).](#)
6. **“Self-isospectrality, special supersymmetry, and their effect on the band structure”**
F. Correa, V. Jakubsky, L. M. Nieto and M. S. Plyushchay.
[Physical Review Letters. **101**, 030403 \(2008\).](#)
5. **“Hidden nonlinear $su(2|2)$ superunitary symmetry of $N = 2$ superextended 1D Dirac delta potential problem”**
F. Correa, L. M. Nieto and M. S. Plyushchay.
[Physics Letters B **659**, 746 \(2008\).](#)
4. **“Peculiarities of the hidden nonlinear supersymmetry of Pöschl-Teller system in the light of Lamé equation”**
F. Correa and M. S. Plyushchay.
[Journal of Physics A: Mathematical and Theoretical **40**, 14403 \(2007\).](#)

3. **“Hidden nonlinear supersymmetry of finite-gap Lamé equation”**
F. Correa, L. M. Nieto and M. S. Plyushchay.
[Physics Letters B **644**, 94 \(2007\).](#)
2. **“Hidden supersymmetry in quantum bosonic systems”**
F. Correa and M. S. Plyushchay.
[Annals of Physics **322**, 2493 \(2007\).](#)
1. **“On Hidden broken nonlinear superconformal symmetry of conformal mechanics and nature of double nonlinear superconformal symmetry”**
F. Correa, M. A. del Olmo and M. S. Plyushchay.
[Physics Letters B **628**, 157 \(2005\).](#)

Refereed proceedings contributions

- iv) **“Algebraic integrability of $\mathcal{PT}$ -deformed Calogero models”**
F. Correa and O. Lechtenfeld.
[Journal of Physics: Conference Series **2038** 012007 \(2021\).](#)
- iii) **“The tetrahexahedric Calogero model”**
F. Correa and O. Lechtenfeld.
[Phys. Part. Nucl. Lett. **14**, no. 2, 304 \(2017\).](#)
- ii) **“The tetrahexahedric angular Calogero model”**
F. Correa and O. Lechtenfeld.
[J. Phys. Conf. Ser. **804**, no. 1, 012011 \(2017\).](#)
- i) **“Darboux-Crum transformations, Jordan states and $\mathcal{PT}$ -symmetry”**
F. Correa.
[Phys. Part. Nucl. Lett. **14**, no. 2, 395 \(2017\).](#)