

## PUBLICATIONS

### a) Refereed journal publications - published or in press

1. T. Daudé, N. Kamran and F. Nicoleau, 2019, The anisotropic Calderón problem for singular metrics of warped product type: the borderline between uniqueness and invisibility, *J. Spectral Theory*, in press, 39 pages.
2. A. Enciso and N. Kamran, 2019, Lorentzian Einstein metrics with prescribed conformal infinity, *J. Differential Geometry*, 112, pp. 505-554.
3. F. Finster and N. Kamran, 2019, Spinors on singular spaces and the topology of causal fermion systems, *Memoirs of the American Mathematical Society*, 1251, 83 pages.
4. T. Daudé, N. Kamran and F. Nicoleau, 2019, On the hidden mechanism behind non-uniqueness for the anisotropic Calderón problem with data on disjoint sets, *Annales Henri Poincaré*, 20, pp. 859-887.
5. T. Daudé, N. Kamran and F. Nicoleau, 2019, Non-uniqueness results for the anisotropic Calderon problem with data measured on disjoint sets, *Annales de l'Institut Fourier*, 69, pp 119-170.
6. N. Kahouadji, N. Kamran and K. Tenenblat, 2019,  $k$ -th-order evolution equations and local isometric immersions of pseudo-spherical surfaces, *Commun. Contemp. Math.*, 21, 1850025, 26 pages.
7. T. Daudé, N. Kamran and F. Nicoleau, 2019, Separability and symmetry operators for Painlevé metrics and their conformal deformations, *SIGMA Symmetry Integrability Geom. Methods App.* 15, Paper No. 069, 43 pages.
8. N. Kahouadji, N. Kamran and K. Tenenblat, 2016, Second-order equations and local isometric immersions of pseudo-spherical surfaces, *Comm. Anal. Geom.*, 23, pp. 605-643.
9. T. Castro-Silva and N. Kamran, 2016, Third order differential equations and local isometric immersions of pseudospherical surfaces, *Commun. Contemp. Math.*, 18, 1650021, 41 pages.
10. T. Daudé, N. Kamran and F. Nicoleau, 2015, Inverse scattering at fixed energy on asymptotically hyperbolic Liouville surfaces, *Inverse Problems*, 12, 125009, 37 pages.
11. A. Enciso and N. Kamran, 2015, A singular initial-boundary value problem for nonlinear wave equations and holography in asymptotically anti-de Sitter spaces, *J. Maths. Pures et Appliquées*, 103, pp. 1053-1091.
12. A. Enciso and N. Kamran, 2015, Determining an asymptotically AdS spacetime from data on its conformal boundary, *Gen. Rel. Grav.* 47, 147, 11 pages.

13. B. Clarke, D. Jakobson, N. Kamran, L. Silberman and J. Taylor, 2015, Gaussian measures on the space of Riemannian metrics, *Ann. Math. Qué.*, 2, pp. 129-145.
14. A. Farooqui, N. Kamran and P. Panangaden, 2014, An exact expression for photon polarization in Kerr geometry, *Adv. Theor. Math. Phys.*, 18, pp. 659-686 .
15. D. Gómez-Ullate, N. Kamran and R. Milson, 2013, A conjecture on exceptional orthogonal polynomials, *Found. Comput. Math.* 13, pp. 615-666.
16. A. Enciso and N. Kamran, 2012, Causality and the conformal boundary of AdS in real-time holography, *Physical Review D*, 85, 106016, 6 pages.
17. F. Cheng, K. Dasgupta, A. Enciso, N. Kamran, J. Seo, 2012, On the scalar spectrum of the  $Y^{p,q}$  manifolds, *J. High Energy Physics*, 05, 009, 42 pages.
18. N. Kamran and T. Daudé, 2012, Local energy decay of massive Dirac fields in the 5D Myers-Perry metric, *Class. Quantum Grav.*, 29, 145007, 38 pages.
19. D. Gómez-Ullate, N. Kamran and R. Milson, 2012, Two-step Darboux transformations and exceptional Laguerre polynomials, *J. Math. Anal. Appl.*, 387, pp. 410-418.
20. A. Enciso and N. Kamran, 2011, Spinor Green's functions via spherical means on products of space forms, *J. Geom. Phys.*, 61, pp. 180-190.
21. A. Enciso and N. Kamran, 2010, Global causal propagator for the Klein-Gordon equation on a class of supersymmetric AdS backgrounds, *Adv. Theor. Math. Phys.*, 14, pp. 1183-1208.
22. D. Gómez-Ullate, N. Kamran and R. Milson, 2010, An extension of Bochner's problem: exceptional invariant subspaces, *J. Approx. Theory*, 162, pp. 987-1006.
23. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2009, Linear Waves in the Kerr Geometry: A Mathematical Voyage to Black Hole Physics, *Bull. Amer. Math. Soc. (N.S.)*, 46, pp. 635-659.
24. A. Enciso and N. Kamran, 2009, Green's function for the Hodge Laplacian on some classes of Riemannian and Lorentzian symmetric spaces, *Commun. Math. Phys.*, 290, pp. 105-127.
25. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2009, A rigorous treatment of energy extraction from a rotating black hole, *Commun. Math. Phys.*, 287, pp. 829-847.
26. N. Kamran, P.J. Olver and K. Tenenblat, 2009, Local symplectic invariants for curves, *Commun. Contemp. Math.*, 11, pp. 165-183.
27. D. Gómez-Ullate, N. Kamran and R. Milson, 2009, An extended class of orthogonal polynomials defined by a Sturm-Liouville problem, *J. Math. Anal. Appl.*, 259, pp. 352-367.
28. N. Barnaby and N. Kamran, 2008, Dynamics with infinitely many derivatives: variable coefficient equations, *J. High Energy Physics*, 12, pp. 1-26.

29. N. Barnaby and N. Kamran, 2008, Dynamics with infinitely many derivatives: the initial value problem, *J. High Energy Physics*, 02, pp. 1-39.
30. D. Gómez-Ullate, N. Kamran and R. Milson, 2007, Quasi-exact solvability in a general polynomial setting, *Inverse Problems*, 23, pp. 1915-1942.
31. D. Gómez-Ullate, N. Kamran and R. Milson, 2007, Structure theorems for linear and non-linear differential operators admitting invariant polynomial subspaces, *Discrete and Continuous Dynamical Systems, Series A*, 18, pp. 85-106.
32. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2006, Decay of scalar waves in Kerr geometry, *Commun. Math. Phys.*, 264, pp. 465-503.
33. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2005, An integral spectral representation of the propagator for the wave equation in Kerr geometry, *Commun. Math. Phys.*, 260, pp. 257-298
34. S. Frittelli, N. Kamran and E.T. Newman, 2005, Null surfaces and contact geometry, *J. Hyperbolic Diff. Eq.*, 2, pp. 481-496.
35. D. Gómez-Ullate, N. Kamran and R. Milson, 2005, Quasi-exact solvability and the direct approach to invariant subspaces, *J. Phys. A: Math. Gen.*, 38, pp. 2005-2019.
36. N. Kamran and T. Robart, 2004, An infinite-dimensional manifold structure for analytic Lie pseudogroups of infinite type, *International Mathematics Research Notices*, 34, pp 1761-1783.
37. D. Gómez-Ullate, N. Kamran and R. Milson, 2004, Supersymmetry and algebraic Darboux transformations, *J. Phys. A: Math. Gen.*, 37, pp. 10065-10078.
38. D. Gómez-Ullate, N. Kamran and R. Milson, 2004, The Darboux transformation and algebraic deformations of shape invariant potentials, *J. Phys. A: Math. Gen.*, 37, pp. 1789-1804.
39. S. Frittelli, N. Kamran and E.T. Newman, 2003, The eikonal equation, envelopes and contact transformations, *Class. Quantum Grav.*, 20, pp. 3071-3079
40. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2003, The long-term dynamics of Dirac particles in the Kerr-Newman black hole geometry, *Adv. Theor. Math. Phys.*, 7, pp. 25-52.
41. N. Kamran, 2003, Some recent mathematical developments in general relativity, *C. R. Math. Rep. Acad. Sci. Canada*, 25, pp. 33-46.
42. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2002, Decay rates and probability estimates for massive Dirac particles in the Kerr-Newman black hole geometry, *Commun. Math. Phys.*, 230, pp. 201-244.
43. S. Frittelli, N. Kamran and E.T. Newman, 2002, Differential equations and conformal geometry, *J. Geometry and Physics*, 43, pp. 133-145.
44. N. Kamran and T. Robart, 2001, On Lie's third fundamental theorem for analytic isotropy Lie pseudo-groups of infinite type, *J. Lie Theory*, 11, pp. 57-80.

45. F. Finster, N. Kamran, J. Smoller and S.-T. Yau, 2000, Non-existence of time periodic solutions of the Dirac equation in axisymmetric black hole geometries, *Comm. Pure and Applied Mathematics*, LIII, pp. 902-929, erratum on p. 1201.
46. N. Kamran, R. Milson and P. J. Olver, 2000, Invariant modules and the reduction of non-linear partial differential equations to dynamical systems, *Advances in Mathematics*, 156, pp. 286-319.
47. N. Kamran and T. Robart, 2000, On the parametrization problem of Lie pseudo-groups of infinite type, *Comptes Rendus Acad. Sci. (Paris)*, t. 331, Série I, pp. 899-903.
48. P. Bracken and N. Kamran, 1999, Matrix Calogero-Sutherland Hamiltonians and the multi-dimensional Darboux transformation, *J. Geometry and Physics*, 30, pp. 283-294.
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53. I. Anderson and N. Kamran, 1997, The variational bicomplex for hyperbolic second-order scalar partial differential equations in the plane, *Duke Math. J.*, 87, pp. 265-319.
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55. T. Robart et N. Kamran, 1997, Sur la théorie locale des pseudo-groupes infinis, *Mathematische Annalen*, 308, pp. 593-613,
56. N. Kamran and T. Robart, 1997, Abstract structure for Lie pseudo-groups of infinite type, *Comptes Rendus Acad. Sci. (Paris)*, t. 324, Série I, pp. 1395-1399.
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58. A. González-López, N. Kamran and P.J. Olver, 1996, Real Lie algebras of differential operators and quasi-exactly solvable potentials, *Phil. Trans. Roy. Soc. London A*, 354, pp. 1165-1193.
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61. I. Anderson and N. Kamran, 1995, Conservation laws and the variational bi-complex for second-order scalar hyperbolic equations in the plane, *Acta Applic. Math.*, 41, pp. 135-144.
62. N. Kamran and K. Tenenblat, 1995, On differential equations describing pseudo-spherical surfaces, *J. Differential Equations*, 104, pp. 60-116.
63. A. González-López, N. Kamran and P.J. Olver, 1994, New quasi-exactly solvable Hamiltonians in two dimensions, *Commun. Math. Phys.*, 179, pp. 503-537.
64. I. Anderson, N. Kamran and P.J. Olver, 1993, Internal, external and generalized symmetries, *Advances in Mathematics*, 100, pp. 53-100.
65. R. B. Gardner and N. Kamran, 1993, Characteristics and the geometry of non-linear hyperbolic equations in the plane, *J. Differential Equations*, 104, pp. 60-116.
66. A. González-López, J. Hurtubise, N. Kamran and P.J. Olver, 1993, Quantification de la cohomologie des algèbres de Lie de champs de vecteurs et fibrés endroites sur des surfaces complexes compactes, *Comptes Rendus Acad. Sci. (Paris)*, t. 316, Série I, pp. 1307-1312.
67. A. González-López, N. Kamran and P.J. Olver, 1993, Normalizability of 1-dimensional quasi-exactly solvable Schrödinger operators, *Commun. Math. Phys.*, 153, pp. 117-146.
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69. J. Hurtubise and N. Kamran, 1992, Projective connections, double fibrations and formal neighbourhoods of lines , *Mathematische Annalen*, 292, pp383-409.
70. A. González-López, N. Kamran and P.J. Olver, 1992, Lie algebras of vector fields in the real plane, *Proc. London Math. Soc.*, 64, pp. 339-368.
71. N. Kamran and P.J. Olver, 1992, Equivalence of higher-order Lagrangians, III: New invariant differential equations, *Nonlinearity*, 5, pp. 601-621.
72. A. González-López, N. Kamran and P.J. Olver, 1991, Quasi-exactly solvable Lie algebras of differential operators in two complex variables, *J. Phys. A: Math. Gen.*, 24, pp. 3995-4008.
73. B.R. Iyer and N. Kamran, 1991, Separation of variables for the Dirac equation in an extended class of Lorentzian metrics with local rotational symmetry, *J. Math. Phys.*, 32, pp. 2497-2503.
74. N. Kamran and P.J. Olver, 1991, Equivalence of higher-order Lagrangians, I: Formulation and reduction, *J. Math. Pures et Appliquées*, 70, pp. 369-391.

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77. N. Kamran and P.J. Olver, 1990, Lie algebras of differential operators and Lie-algebraic potentials, *J. Math. Anal. Appl.*, 145, pp. 342-356.
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79. N. Kamran and P.J. Olver, 1989, Equivalence of differential operators, *SIAM J. Math. Anal.*, 20, pp. 1172-1187.
80. L. Hsu and N. Kamran, 1989, Classification of second-order ordinary differential equations admitting Lie groups of fiber-preserving symmetries, *Proc. London Math. Soc.*, 58, pp. 387-416.
81. N. Kamran and P.J. Olver, 1989, Le problème d'équivalence à une divergence près dans le calcul des variations des intégrales multiples, *Comptes Rendus Acad. Sci. (Paris)*, t. 308, Série I, pp. 249-252.
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94. N. Kamran and R. G. McLenaghan, 1985, Separation of variables and constants of the motion for the Dirac equation on curved space-time, *Bull. Cl. Sci. Acad. Roy. Belgique*, LXX, pp. 596-610.
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96. R. Debever, N. Kamran and R. G. McLenaghan, 1984, Sur une nouvelle expression de la solution générale des équations d' Einstein avec champ de Maxwell non-singulier, aligné, sans source et avec constante cosmologique, en type D, *Annales de l' Institut Henri Poincaré*, 41, pp. 191-206.
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## b) Articles submitted to refereed journals

105. T. Daudé, N. Kamran and F. Nicoleau, 2019, On non-uniqueness for the partial anisotropic Cakderón problem with partial data, 15 pages.
106. T. Daudé, N. Kamran and F. Nicoleau, 2019, Stability in the inverse Steklov problem on warped product Riemannian manifolds, 28 pages.
107. F. Finster and N. Kamran, 2019, Complex structures on jet spaces and boson Fock space dynamics for causal variational principles, 42 pages.

## c) Research monographs

108. N. Kamran, 2002, *Selected topics in the geometrical study of differential equations*, NSF-CBMS Regional Conference Series in Mathematics Vol. 96, American Mathematical Society, Providence, 134 pages.
109. N. Kamran, 1989, *Contributions to the study of the equivalence problem of Elie Cartan and its applications to partial and ordinary differential equations*, Mémoires de la Classe des Sciences de l' Académie Royale de Belgique, t. 45, Fasc. 7, 120 pages (winner of a prize awarded by the Royal Academy of Sciences of Belgium for the 1988 annual competition in the mathematics category).

## d) Articles in refereed conference proceedings

110. T. Daudé, N. Kamran and F. Nicoleau, 2017, A survey of non-uniqueness results for the anisotropic Calderón problem with disjoint data, in *Nonlinear analysis in geometry and applied mathematics*, ed. L. Bieri *et al.*, Harvard CMSA Series in Mathematics, Vol. 2, pp. 77-102.
111. N. Kahouadji, N. Kamran and K. Tenenblat, 2015, Local isometric immersions of pseudo-spherical surfaces and evolution equations, in *Hamiltonian PDEs and applications*, ed. P. Guyenne *et al.*, Fields Institute Communications, Springer-Verlag, pp. 369-383.
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119. N. Kamran and T. Robart, 1997, Sur les pseudogroupes abstraits de type F, in *Harmonic Analysis and Number Theory*, ed. S. Drury and R. Murty, Canadian Mathematical Society Conference Proceedings, Vol. 21, American Mathematical Society, Providence, pp. 153-180.
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121. A. González-López, N. Kamran and P.J. Olver, 1997, Quasi-exact solvability in the real domain, in *Field Theory, Integrable Systems and Strings*, ed. F. Khanna and L. Vinet, CRM Publications, pp. 58-70.
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125. I. Anderson, N. Kamran and P.J. Olver, 1993, Internal symmetries of differential equations, in *Modern Group Analysis: Advanced Analytical and Computational*

- Methods in Mathematical Physics*, ed. N. Ibragimov, M. Torrisi and A. Valenti, Kluwer, Dordrecht, pp. 7-21.
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## e) Chapters in books

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