

PUBLICATIONS

a) Journal publications:

1. T. Daudé, N. Kamran and F. Nicoleau, 2016, Non-uniqueness results for the anisotropic Calderon problem with data measured on disjoint sets, submitted, 49 pages.
2. A. Enciso and N. Kamran, 2016, Lorentzian Einstein metrics with prescribed conformal infinity, submitted, 40 pages.
3. F. Finster and N. Kamran, 2016, Spinors on singular spaces and the topology of causal fermion systems, submitted, 65 pages.
4. N. Kahouadji, N. Kamran and K. Tenenblat, 2016, Second-order equations and local isometric immersions of pseudo-spherical surfaces, *Comm. Anal. Geom.*, in press, 25 pages.
5. T. Castro-Silva and N. Kamran, 2016, Third order differential equations and local isometric immersions of pseudospherical surfaces, *Commun. Contemp. Math.*, in press, 33 pages.
6. T. Daudé, N. Kamran and F. Nicoleau, 2016, Inverse scattering at fixed energy on asymptotically hyperbolic Liouville surfaces, *Inverse Problems*, in press, 39 pages.
7. A. Enciso and N. Kamran, 2015, Determining an asymptotically AdS spacetime from data on its conformal boundary, *Gen. Rel. Grav.* 47, 147, 11 pages.
8. B. Clarke, D. Jakobson, N. Kamran, L. Silberman and J. Taylor, 2015, Manifold of metrics with fixed volume form, *Ann. Math. Qué.*, 2, pp. 129-145.
9. 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.
10. 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 .
11. D. Gómez-Ullate, N. Kamran and R. Milson, 2013, A conjecture on exceptional orthogonal polynomials, *Found. Comput. Math.* 13, pp. 615-666.
12. A. Enciso and N. Kamran, 2012, Causality and the conformal boundary of AdS in real-time holography, *Physical Review D*, 85, 106016, 6 pages.
13. 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.
14. 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.
15. 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.

16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.
22. N. Kamran, P.J. Olver and K. Tenenblat, 2009, Local symplectic invariants for curves, *Commun. Contemp. Math.*, 11, pp. 165-183.
23. 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.
24. N. Barnaby and N. Kamran, 2008, Dynamics with infinitely many derivatives: variable coefficient equations, *J. High Energy Physics*, 12, pp. 1-26.
25. N. Barnaby and N. Kamran, 2008, Dynamics with infinitely many derivatives: the initial value problem, *J. High Energy Physics*, 02, pp. 1-39.
26. D. Gómez-Ullate, N. Kamran and R. Milson, 2007, Quasi-exact solvability in a general polynomial setting, *Inverse Problems*, 23, pp. 1915-1942.
27. 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.
28. 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.
29. 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
30. S. Frittelli, N. Kamran and E.T. Newman, 2005, Null surfaces and contact geometry, *J. Hyperbolic Diff. Eq.*, 2, pp. 481-496.

31. 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.
32. 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.
33. D. Gómez-Ullate, N. Kamran and R. Milson, 2004, Supersymmetry and algebraic Darboux transformations, *J. Phys. A: Math. Gen.*, 37, pp. 10065-10078.
34. 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.
35. S. Frittelli, N. Kamran and E.T. Newman, 2003, The eikonal equation, envelopes and contact transformations, *Class. Quantum Grav.*, 20, pp. 3071-3079
36. 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.
37. N. Kamran, 2003, Some recent mathematical developments in general relativity, *C. R. Math. Rep. Acad. Sci. Canada*, 25, pp. 33-46.
38. 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.
39. S. Frittelli, N. Kamran and E.T. Newman, 2002, Differential equations and conformal geometry, *J. Geometry and Physics*, 43, pp. 133-145.
40. 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.
41. 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.
42. 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.
43. 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.
44. P. Bracken and N. Kamran, 1999, Matrix Calogero-Sutherland Hamiltonians and the multi-dimensional Darboux transformation, *J. Geometry and Physics*, 30, pp. 283-294.
45. N. Kamran and R. Milson, 1999, Algebraic exact solvability of trigonometric-type Hamiltonians associated to root systems, *J. Math. Phys.* 40, pp. 5004-5013.

46. A. González-López and N. Kamran, 1998, The multi-dimensional Darboux transformation, *J. Geometry and Physics*, 26, pp. 202-226.
47. F. Finkel and N. Kamran, 1998, The Lie-algebraic structure of differential operators admitting invariant polynomial subspaces, *Advances in Applied Mathematics*, 20, pp. 300-322.
48. N. Kamran and K. Tenenblat, 1998, Periodic systems for the higher-dimensional Laplace transformation, *Discrete and Continuous Dynamical Systems*, 4, 359-378.
49. 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.
50. N. Kamran and T. Robart, 1997, Perspectives sur la théorie des pseudo-groupes infinis de transformations, *J. Geometry and Physics*, 23, pp. 308-318.
51. T. Robart et N. Kamran, 1997, Sur la théorie locale des pseudo-groupes infinis, *Mathematische Annalen*, 308, pp. 593-613,
52. 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.
53. N. Kamran and K. Tenenblat, 1996, Laplace transformation in higher dimensions, *Duke Math. J.*, 84, pp. 237-266.
54. 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.
55. R.B. Gardner and N. Kamran, 1995, Normal forms and focal systems for determined systems of two first-order partial differential equations in the plane, *Indiana University Math. J.*, 44, pp. 1127-1162.
56. I. Anderson and N. Kamran, 1995, La cohomologie du complexe bi-gradué variationnel pour les équations paraboliques du deuxième ordre dans le plan, *Comptes Rendus Acad. Sci. (Paris)*, t. 321, Série I, pp. 1213-1217.
57. 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.
58. N. Kamran and K. Tenenblat, 1995, On differential equations describing pseudo-spherical surfaces, *J. Differential Equations*, 104, pp. 60-116.
59. 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.
60. I. Anderson, N. Kamran and P.J. Olver, 1993, Internal, external and generalized symmetries, *Advances in Mathematics*, 100, pp. 53-100.
61. 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.

62. 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.
63. 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.
64. A. González-López, N. Kamran and P.J. Olver, 1992, Lie algebras of differential operators in two complex variables, *American Journal of Mathematics*, 114, pp1163-1185.
65. J. Hurtubise and N. Kamran, 1992, Projective connections, double fibrations and formal neighbourhoods of lines , *Mathematische Annalen*, 292, pp383-409.
66. 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.
67. N. Kamran and P.J. Olver, 1992, Equivalence of higher-order Lagrangians, III: New invariant differential equations, *Nonlinearity*, 5, pp. 601-621.
68. 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.
69. 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.
70. 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.
71. M. Fels and N. Kamran, 1990, Systèmes séparables non-factorisables et symétries du deuxième ordre de l'opérateur de Dirac, *Comptes Rendus Acad. Sci. (Paris)*, t. 311, Série I, pp. 825-830.
72. M. Fels and N. Kamran, 1990, Non-factorisable separable systems and higher-order symmetries of the Dirac operator, *Proc. Roy. Soc. London A*, 428, pp. 229-249.
73. N. Kamran and P.J. Olver, 1990, Lie algebras of differential operators and Lie-algebraic potentials, *J. Math. Anal. Appl.*, 145, pp. 342-356.
74. N. Kamran and P.J. Olver, 1989, Equivalence problems for first-order Lagrangians, *J. Differential Equations*, 80, pp. 32-79.
75. N. Kamran and P.J. Olver, 1989, Equivalence of differential operators, *SIAM J. Math. Anal.*, 20, pp. 1172-1187.
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81. N. Kamran, 1987, Séparation des variables pour les potentiels de Debye dans toutes les solutions de type D des équations d' Einstein, *Comptes Rendus Acad. Sci. (Paris)*, t. 304, Série I, pp. 299-302.
82. N. Kamran and W.F. Shadwick, 1987, A differential-geometric characterization of the first Painlevé transcendent, *Mathematische Annalen*, 279, pp. 117-123.
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86. N. Kamran, K. Lamb and W. F. Shadwick, 1985, The local equivalence problem for $y'' = F(x, y, y')$ and the Painlevé transcendents, *J. Differential Geometry*, 22, pp. 139-150.
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d) Research monographs:

101. 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.
102. 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).

e) Articles in refereed conference proceedings:

103. 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, D. Nicholls and C. Sulem, Fields Institute Communications, Springer-Verlag, in press.
104. D. Gómez-Ullate, N. Kamran and R. Milson, 2012, On orthogonal polynomials spanning a non-standard flag, in *Algebraic aspects of Darboux transformations, quantum integrable systems, and super-symmetric quantum mechanics*, ed. P. Acosta-Humanez *et al.*, Contemporary Mathematics, Vol. 563, American Mathematical Society, Providence, pp. 51-71.
105. D. Gómez-Ullate, N. Kamran and R. Milson, 2010, Exceptional orthogonal polynomials and the Darboux transformation, in *Current trends in integrability and nonlinear phenomena*, published as a special issue of *J. Phys. A*, 43, 434016, 16 pp.
106. N. Kamran, 2009, Focal systems for Pfaffian systems with characteristics, in *Differential equations: Geometry, symmetries and integrability, the Abel Symposium 2008*, ed. B. Kruglikov *et al.*, Springer-Verlag.
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114. F. Finkel, A. González-López, N. Kamran, P.J. Olver, M.A. Rodríguez, 1997, Lie algebras of differential operators and partial integrability, in *Differential Geometry and its Applications (Santiago de Compostela, 1995)*, An. Fis. Monogr., 3, CIEMAT, Madrid, pp. 29-53.
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f) Chapters in books:

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128. N. Kamran, 2006, Transitive analytic Lie pseudogroups, in *Inspired by S.S. Chern, a memorial volume in honor of a great mathematician*, ed. P.A. Griffiths, Nankai Tracts in Mathematics, Vol. 11, World Scientific, Singapore, pp. 297-313.
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