Recent Publications

(a) Journal articles:

1. S.R. Czapor and R.G. McLenaghan, "Hadamard's problem of diffusion of waves", *Acta Phys. Polon. B*, **1** (2008), 55-75.

2. J.T. Horwood and R.G. McLenaghan, "Orthogonal separation of variables for the Hamilton-Jacobi and wave equations in three-dimensional Minkowski space", *J. Math. Phys.*, **49** (2008), 023501-023548.

3. M. Chanachowicz, C. Chanu and R.G. McLenaghan, "Invariant classification of the rotationally symmetric R-separable webs for the Laplace equation in Euclidean space", *J. Math. Phys.*, **49** (2008), 013511-013531.

4. J.T. Horwood and R.G. McLenaghan, "Transformation to pseudo-Cartesian coordinates in locally flat pseudo-Riemannian spaces", *J. Geom. Phys.* **57** (2007), 1435-1440.

5. C. Chanu, L. de Giovanni and R.G. McLenaghan, "Geometrical classification of Killing tensors on bi-dimensional flat manifolds", *J. Math. Phys.* **47** (2006), 073506-1-20.

6. R.T. Horwood, R.G. McLenaghan and R.G. Smirnov, "Invariant classification of orthogonally separable Hamiltonian systems in Euclidean space", *Commun. Math. Phys.* **259** (2005), 679-709.

7. R.G. McLenaghan, R. Milson and R.G. Smirnov, "Killing tensors as irreducible representations of the general linear group", *C.R. Acad. Sci. Paris, Ser. I* **339** (2004), 621-624.

8. R.G. McLenaghan, R.G. Smirnov and D. The, "An extension of the classical theory of algebraic invariants to pseudo-Riemannian geometry and Hamiltonian mechanics", *J. Math. Phys.* **45** (2004), 1070-1120.

9. S.R. Czapor, R.G. McLenaghan, and V. Wünsch, "Conformal C and empty spaces of Petrov type N", *Gen. Relativity Gravitation* **34** (2002), 385-402.

10. L. Fatibene, M. Ferraris, M. Francaviglia, and R.G. McLenaghan, "Generalized symmetries in mechanics and field theories", *J. Math. Phys.* **43** (2002), 3147-3161.

11. R.G. McLenaghan, and R.G. Smirnov, "Intrinsic Characterizations of Orthogonal Separability for Natural Hamiltonians with Scalar Potentials on Pseudo-Riemannian spaces, J.N. Math. Phys. (2002) **9**, Supplement 1, 140-151.

12. R.G. McLenaghan, R.G. Smirnov and D. The, "Group invariant classification of separable Hamiltonian systems in the Euclidean plane and the O(4)-symmetric Yang-Mills theories of Yatsun", *J. Math. Phys.* **43** (2002), 1422-1440.

13. J. Carminati, E. Zakhary, R.G. McLenaghan, "On the problem of algebraic completness for the invariants of the Riemann tensor. II.", *J. math. Phys.* **43** (2002), 492-507.

14. A.T. Bruce, R.G. McLenaghan and R.G. Smirnov, "Benenti's theorem and the method of moving frames", *Rep. Math. Phys.*, **48** (2001), 227-234.

15. A.T. Bruce, R.G. McLenaghan and R.G. Smirnov, "A geometrical approach to the problem of integrability of Hamiltonian systems by separation of variables", *J. Geom. Phys.*, **39** (2001), 301-322.]

16. A.T. Bruce, R.G. McLenaghan and R.G. Smirnov, "A systematic study of the Toda lattice in the context of the Hamilton-Jacobi theory", *Z. Angew. Math. Phys.*, **52** (2001), 171-190.

(b) Conference proceedings:

17. C.M. Adlam, R.G. McLenaghan and R.G. Smirnov, "An orbit analysis approach to the study of superintegrable systems in the Euclidean plane", in Proceedings of the 2nd International Conference on Superintegrable Systems in Classical and Quantum Mechanics, Dubna, Russia, June 27-July 1, 2005, *Physics of Atomic Nuclea*, **70** (2007), 486-490.

18. C.M. Adlam, R.G. McLenaghan and R.G. Smirnov, "On geometric properties of joint invariants of Killing tensors", in *Symmetries and Overdetermined Systems of Partial Differential Equations*, eds. Michael Eastwood and Willard Miller Jr., IMA Volumes in Mathematics and its Applications, **144**, (Springer. N.Y. 2007), 205-222.

19. R.G. McLenaghan and G. Rastelli, "Separation of variables for systems of first-order partial differential equations and the Dirac equation in two-dimensional manifolds", in *Symmetries and Overdetermined Systems of Partial Differential Equations*, eds. Michael Eastwood and Willard Miller Jr., IMA Volumes in Mathematics and its Applications **144**,(Springer. N.Y. 2007), 471-496.

20. C.M. Adlam, R.G. McLenaghan and R.G. Smirnov, "An orbit analysis approach to the study of superintegrable systems in the Euclidean plane", in Proceedings of the 2nd International Conference on Superintegrable Systems in Classical and Quantum Mechanics, Dubna, Russia, June 27-July 1, 2005, *Physics of Atomic Nuclea*, **70** (2007), 486-490.

21. J.T. Horwood, R.G. McLenaghan, R.G. Smirnov and D. The, "Fundamental covariants in the invariant theory of Killing tensors", in Proceedings of Symmetries and Perturbation Theory – SPT 2004, eds. G. Gaeta, B. Prinari, S. Rauch-Wojciechowski and S. Teracini, 2004 (World Scientific, Singapore, 2005), 124-131.

22. R.J. Deeley, J.T. Horwood, R.G. McLenaghan and R.G. Smirnov, "Theory of algebraic invariants of vector spaces of Killing tensors: methods for computing the fundamental invariants", in Symmetry in non-linear mathematical physics, Parts 1, 2, 3, *Pr. Inst. Mat. Nats. Alcad. Nauk. Ukr. Mat. Zastos*, **50** (2004), 1079-1086.

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24. R.G. McLenaghan, R.G. Smirnov and D. The, "Towards a classification of cubic integrals of motion", in Superintegrability of Classical and Quantum Systems, eds. P. Tempesta, P. Winternitz, J. Harnad, W. Miller, Jr. and M. Rodriguez, CRM Proceedings and Lecture Notes (AMS, Providence, 2004), 199-209.

25. L. Fatibene, R.G. McLenaghan and S.N. Smith, Separation of variables for the Dirac equation on low dimensional spaces, in Proceedings of the International Conference: Advances in General Relativity and Cosmology, ed. G. Ferrarese (Pitagora Editrice Bologna, 2003), 109-127.

26. R.G. McLenaghan, R.G. Smirnov, and D. The, Group invariants of Killian tensors in the Minkowski plane, in Proceedings of the Conference Symmetry and Perturbation Theory – SPT2002, eds. S. Abenda, G. Gaeta and S. Walcher (World Scientific, Singapore, 2003), 153-161.

27. R.G. McLenaghan, R.G. Smirnov and D. The, The 1881 problem of Morera revisited, in Proceedings of the 8th International Conference on Differential Geometry and Its Aplications, eds. O. Kowalski, D. Krupka and J. Slovak (Silesian University, Opava, 2003), pp. 333-342; http://gicdga.math.slu.cz/proceedings.html.

28. K.C. Chu, S.R. Czapor and R.G. McLenaghan, "Huygens' principle and Maple's NPspinor package", in *Recent Developments in General Relativity*, Genoa 2000, Proceedings of the 14th Italian Conference on General Relativity and Gravitational Physics ed. C. Cianci, R. Collina, P. Fre, M. Francaviglia, (Springer, Milano, 2002), 151-163.