References

[**1**] Arnol'd, V.I., Gusein–Zade, S.M., and Varchenko, A.N., *Singularities of Differentiable Maps*, Birkhäuser, Boston, 1985, 1988.

[**2**] Anderson, I.M., Introduction to the variational bicomplex, *Contemp. Math.* **132** (1992), 51–73.

[**3**] Anderson, I.M., and Thompson, G., *The Inverse Problem of the Calculus of Variations for Ordinary Differential Equations*, Memoirs Amer. Math. Soc., Vol. 98, No. 473, Providence, R.I., 1992.

[**4**] Anderson, R.L., and Ibragimov, N.H., *Lie–Bäcklund Transformations in Applications*, SIAM, Philadelphia, 1979.

[**5**] Ball, J.M., and Mizel, V.J., One-dimensional variational problem whose minimizers do not satisfy the Euler-Lagrange equation, *Arch. Rat. Mech. Anal.* **90** (1985), 325–388.

[**6**] Bianchi, L., *Lezioni sulla Teoria dei Gruppi Continui Finiti di Transformazioni*, Enrico Spoerri, Pisa, 1918.

[**7**] Bluman, G.W., and Kumei, S., Symmetry-based algorithms to relate partial differential equations: I. Local symmetries, *Euro. J. Appl. Math.* **1** (1990), 189–216.

[**8**] Bluman, G.W., and Kumei, S., Symmetry-based algorithms to relate partial differential equations: II. Linearization by nonlocal symmetries, *Euro. J. Appl. Math.* **1** (1990), 217–223.

[**9**] Bluman, G.W., and Kumei, S., *Symmetries and Differential Equations*, Springer–Verlag, New York, 1989.

[**10**] Bott, R., and Tu, L.W., *Differential Forms in Algebraic Topology*, Springer–Verlag, New York, 1982.

[**11**] Cartan, É., *Leçons sur les Invariants Integraux*, Hermann, Paris, 1922.

[**12**] Cartan, É., *La Topologie des Groupes de Lie*, Exposés de Géométrie No. 8, Hermann, Paris, 1936.

[**13**] Chakravarty, S., Ablowitz, M.J., and Clarkson, P.A., Reductions of self-dual Yang–Mills fields and classical systems, *Phys. Rev. Lett.* **65** (1990), 1085–1087.

[**14**] Chazy, J., Sur les équations différentielles du troisième ordre et d'ordre supérieur dont l'intégrale générale a ses points critiques fixes, *Acta Math.* **34** (1911), 317–385.

[**15**] Clarkson, P.A., and Olver, P.J., Symmetry and the Chazy equation, *J. Diff. Eq.* **124** (1996), 225–246.

[**16**] Ehresmann, C., Introduction a la théorie des structures infinitésimales et des pseudo-groupes de Lie, *in*: *Geometrie Differentielle*, Colloq. Inter. du Centre Nat. de la Recherche Scientifique, Strasbourg, 1953, pp. 97–110.

[**17**] Elphick, C., Tirapegui, E., Brachet, M.E., Coullet, P., and Ioss, G., A simple global characterization for normal forms of singular vector fields, *Physica* **29D** (1987), 95–127.

[**18**] Golubitsky, M., and Guillemin, V., *Stable Mappings and their Singularities*, Springer–Verlag, New York, 1973.

[**19**] Guckenheimer, J., and Holmes, P., *Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields*, Appl. Math. Sci., Vol. 42, Springer–Verlag, New York, 1983.

[**20**] Guggenheimer, H.W., *Differential Geometry*, McGraw–Hill, New York, 1963.

[**21**] Halphen, G.–H., Sur les invariant différentiels, *in*: *Oeuvres*, Vol. 2, Gauthier–Villars, Paris, 1913, pp. 197–253.

[**22**] Hereman, W., Review of symbolic software for the calculation of Lie symmetries of differential equations, *Euromath Bull.* **1** (1994), 45–82.

[**23**] Hermann, R., The differential geometry of foliations II, *J. Math. Mech.* **11**(1962), 303–315.

[**24**] Hille, E., *Ordinary Differential Equations in the Complex Domain*, John Wiley & Sons, New York, 1976.

[**25**] Humphreys, J.E., *Introduction to Lie Groups and Lie Algebras*, Graduate Texts in Mathematics, Vol. 9, Springer–Verlag, New York, 1976.

[**26**] Ibragimov, N.H., ed., *CRC Handbook of Lie Group Analysis of Differential Equations*, Vol. 1, CRC Press, Boca Raton, Fl., 1994.

[**27**] Ince, E.L., *Ordinary Differential Equations*, Dover, New York, 1956.

[**28**] Jacobson, N., *Lie Algebras*, Interscience Publ. Inc., New York, 1962.

[**29**] Kalnins, E.G., and Miller, W., Related evolution equations and Lie symmetries, *SIAM J. Math. Anal.* **16** (1985), 221–232.

[**30**] Kalnins, E.G., and Miller, W., Equivalence classes of related evolution equations and Lie symmetries, *J. Phys. A* **20** (1987), 5434–5446.

[**31**] Kogan, I.A., and Olver, P.J., Invariant Euler-Lagrange equations and the invariant variational bicomplex, *Acta Appl. Math.* **76** (2003), 137–193.

[**32**] Lewy, H., An example of a smooth linear partial differential equation without solution, *Ann. Math.* **64** (1956), 514–522.

[**33**] Lie, S., Über Differentialinvarianten, *in*: *Gesammelte Abhandlungen*, Vol. 6, B.G. Teubner, Leipzig, 1927, pp. 95–138.

[**34**] Lie, S., Über Integralinvarianten und ihre Verwertung für die Theorie der Differentialgleichungen, *in*: *Gesammelte Abhandlungen*, Vol. 6, B.G. Teubner, Leipzig, 1927, pp. 664–701.

[**35**] Marsden, J.E., and Weinstein, A., Reduction of symplectic manifolds with symmetry, *Rep. Math. Phys.* **5** (1974), 121–130.

[**36**] Mikhailov, A.V., Shabat, A.B., and Sokolov, V.V., The symmetry approach to classification of integrable equations, *in*: *What is Integrability?*, V.E. Zakharov, ed., Springer–Verlag, New York, 1990, pp. 115–184.

[**37**] Mostow, G.D., The extensibility of local Lie groups of transformations and groups on surfaces, *Ann. Math.* **52** (1950), 606–636.

[**38**] Nagano, T., Linear differential systems with singularities and an application to transitive Lie algebras, *J. Math. Soc. Japan* **18** (1966), 398–404.

[**39**] Narasimhan, R., *Analysis on Real and Complex Manifolds*, North Holland Publ. Co., Amsterdam, 1968.

[**40**] Newell, A., *Solitons in Mathematics and Physics*, Society for Industrial and Applied Mathematics, Philadelphia, 1985.

[**41**] Noether, E., Invariante Variationsprobleme, *Nachr. Konig. Gesell. Wissen. Gottingen, Math.–Phys. Kl.* (1918), 235–257. (See *Transport Theory and Stat. Phys.* **1** (1971), 186–207 for an English translation.)

[**42**] Olver, P.J., Conservation laws and null divergences, *Math. Proc. Camb. Phil. Soc.* **94** (1983), 529–540.

[**43**] Olver, P.J., *Applications of Lie Groups to Differential Equations*, Second Edition, Graduate Texts in Mathematics, Vol. 107, Springer–Verlag, New York, 1993.

[**44**] Olver, P.J., *Equivalence, Invariants, and Symmetry*, Cambridge University Press, Cambridge, 1995.

[**45**] Olver, P.J., Sapiro, G., and Tannenbaum, A., Differential invariant signatures and flows in computer vision: a symmetry group approach, *in*: *Geometry–Driven Diffusion in Computer Vision*, B. M. Ter Haar Romeny, ed., Kluwer Acad. Publ., Dordrecht, the Netherlands, 1994.

[**46**] Ovsiannikov, L.V., *Group Analysis of Differential Equations*, Academic Press, New York, 1982.

[**47**] Palais, R.S., *A Global Formulation of the Lie Theory of Transformation Groups*, Memoirs of the Amer. Math. Soc. No. 22, Providence, R.I., 1957.

[**48**] Pontrjagin, L., *Topological Groups*, Princeton Univ. Press, Princeton, N.J., 1946.

[**49**] Rosinger, E.E., and Rudolph, M., Group invariance of global generalized solutions of nonlinear PDEs: A Dedekind order completion method, *Lie Groups and their Appl.* **1** (1994), 203–215.

[**50**] Rosinger, E.E., and Walus, Y.E., Group invariance of generalized solutions obtained through the algebraic method, *Nonlinearity* **7** (1994), 837–859.

[**51**] Spivak, M., *A Comprehensive Introduction to Differential Geometry*, Vol. 1, Second Ed., Publish or Perish, Inc., Wilmington, Delaware, 1979.

[**52**] Takhtajan, L.A., A simple example of modular-forms as tau-functions for integrable equations, *Theor. Math. Phys.* **93** (1993), 1308–1317.

[**53**] Tresse, A., Sur les invariants différentiels des groupes continus de transformations, *Acta Math.* **18** (1894), 1–88.

[**54**] Warner, F.W., *Foundations of Differentiable Manifolds and Lie Groups*, Scott, Foresman and Co., Glenview, Ill., 1971.

[**55**] Whitham, G.B., *Linear and Nonlinear Waves*, John Wiley & Sons, New York, 1974.

