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List of Publications

I. **Books and Lecture Notes**

1. Yu.A.Kubyshin, J.M.Mourao, G.Rudolph, I.P.Volobuev: *Dimensional Reduction of Gauge Theories, Spontaneous Compactification and Model Building*, Springer Lecture Notes in Physics 349 (1990)

2. I.P.Volobuev, G.Rudolph, M.Schmidt: *Komplexe halbeinfache Lie-Algebren und einige Anwendungen in Eichfeldtheorien*, Vorlesungsskriptum, Universität Leipzig, prepr. NTZ 2/1997

3. G.Rudolph, M.Schmidt: *Differential Geometry and Mathematical Physics. Part I. Manifolds, Lie Groups and Hamiltonian Systems*, Springer, Theoretical and Mathematical Physics 2013, 759 p., 39 illus.

II. **Articles in Journals**

1. J.Kijowski, G.Rudolph: "On the Localization Problem in Relativistic Quantum Mechanics", Bull.Acad.Pol.d.Sc., Vol. XXIV, No. 11 (1976) 1041-1048

2. J.Kijowski, G.Rudolph: "Gitterapproximation der skalaren Elektrodynamik", Wiss.Z.KMU, 30, 6 (1981) 613- 621

3. J.Dittmann, G.Rudolph: "Konstruktion kanonischer Realisierungen der Lie-Algebra Sp(n,R) auf koadjungierten Orbits", Wiss.Z.KMU 33, 1 (1984) 4-13

4. J.Kijowski, G.Rudolph: "Canonical structure of the theory of gauge fields interacting with matter fields", Rep.Math.Phys., Vol. 20, No. 3 (1984) 385-400

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9. G.Rudolph, I.P.Volobuev: "Geometrical approach to dimensional reduction of symmetric gauge fields", Teor.Mat.Fiz. 62, 3 (1985) 388-399 , in English: 1985 Plenum Publ. Corp. 261-268

10. J.Kijowski, G.Rudolph, A.Thielmann: "Symplectic structure of a non-Abelian Higgs model on the lattice", Rep.Math.Phys., Vol. 24, No. 3 (1986) 377-384

11. G.Rudolph: "Classification of G-invariant configurations of Einstein-Cartan-theory on a multidimensional universe", J.Geom.Phys., Vol. 4, n. 1 (1987) 39-49

12. G.Rudolph: "Remarks on the problem of lifting space-time symmetries", Lett.Math.Phys. 14 (1987) 133-138

13. J.Kijowski, G.Rudolph: "A non-Abelian Higgs model on the lattice in terms of a complete system of gauge invariants", Lett.Math.Phys. 15 (1988) 119-127

14. G.Rudolph: "Gauge invariant quantities for a Higgs-model with gauge group SU(3)", Lett.Math.Phys. 16 (1988) 27-37

15. G.Rudolph, I.P.Volobuev: "Some remarks on dimensional reduction of gauge theories and model building", Nucl.Phys. B 313 (1989) 95-115

16. J.Kijowski, G.Rudolph: "The functional integral on the gauge orbit space for a non-Abelian Higgs model", Nucl.Phys. B 325 (1989) 211-244

17. Yu.A.Kubyshin, G.Rudolph, I.M.Mourao, I.P.Volobuev: "Dimensional reduction of symmetric gauge fields, Higgs models and spontaneous compactification", Fiz.Elem.Cast. i Atomn.Yadra 20, 3 (1989) 561-627 (in Russian)

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19. Yu.A.Kubyshin, O.Richter, G.Rudolph: "On the equations of spontaneous compactification for Gauß- Bonnet extended Einstein-Cartan theory", Rep. Math.Phys. Vol. 30, No. 3 (1992) 355-361

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33. J.Kijowski, G.Rudolph, M.Rudolph: "On the Algebra of Gauge Invariants for One-Flavour Chromodynamics", Rep.Math.Phys. Vol. 40, No. 1 (1997) 131-142

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36. J.Kijowski, G.Rudolph, M.Rudolph: "Gauge Invariant formulation and Bosonization of the Schwinger Model", Phys.Lett. B 419 (1998) 285-290

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49. J. Kijowski and G. Rudolph: "The Observable Algebra of Lattice QCD", Rep. Math. Phys. Vol. 55, No. 2 (2005), 199-210

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55. A. Hertsch, G. Rudolph, M. Schmidt: "Gauge Orbit Types for Theories with Classical Compact Gauge Groups", Rep. Math. Phys. Vol. 66, No. 3 (2010) 331-353

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57. A. Hertsch, G. Rudolph and M. Schmidt: "Gauge orbit types for theories with gauge group O(n), SO(n) or Sp(n)", Ann. H. Poincaré 12, nr. 2 (2011) 351

58. H. Grundling, G. Rudolph: "QCD on an Infinite Lattice", Commun. Math. Phys. 318 (2013) 717-766

59. Martin Hofmann, Gerd Rudolph, Matthias Schmidt: "On the Reflection Type Decomposition of the Adjoint Reduced Phase Space of a Compact Semisimple Lie group", arXiv:1302.6118

III. **Contributions to Conference-Proceedings**

1. J.Dittmann, G.Rudolph: "Canonical realizations of Lie-algebras related to associated bundles", Proc. of Int. Conf. on Diff. Geom. and Appl., Nove Mesto 1983, 51-59

2. G.Rudolph, I.P.Volobuev: "Dimensional reduction of gauge theories in terms of fibre bundle reduction", Proc. of Int. Conf. on Diff. Geom. and Appl., Nove Mesto 1983, 239-245

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5. G.Rudolph: "Construction of gauge invariant quantities for a non-Abelian Higgs-model on the lattice", Proc. of the Conf. on High Energy Phys. and Quant. Field Theory, Protvino 1986, 98-109

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8. J.Kijowski, G.Rudolph: "Gauge invariant path integral and topological degrees of freedom for a non-Abelian Higgs model", Proc. of XVII. Int. Conf. on Diff. Geom. Methods, Chester 1988, World Scientific 1990, 116-129

9. J.Kijowski, G.Rudolph: "Quantization on the gauge orbit space", Proc. of the II. Wigner-Symposium, Goslar 1991, ed.: H.D.Doebner, W.Scherer, F.Schroeck jr., World Scientific 1992, 688-694

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14. R.Matthes, G.Rudolph, R.Wulkenhaar, "On Certain Graded Lie Algebras Arising in Noncommutative Geometry", Acta Phys.Polon. B 27, No.10 (1996) 2755-2762 , Proceed. of the II. German-Polish Symposium "New Ideas in the Theory of Fundamental Interactions", Zakopane 1996

15. R.Matthes, G.Rudolph, R.Wulkenhaar, "Graded Lie Algebras with Derivation and Model Building", Proceed. of the Workshop "Lie Theory and Its Physical Application", Clausthal 1995, eds.: H.-D.Doebner, V.K.Dobrev, J.Hilgert, World Scientific 1996, 149-158

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