

# Publication List

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## 1 Miscellaneous Articles:

More than 120 review articles published or in publication for "The mathematical reviews", American Mathematical Society. Invited book reviews published in the SIAM Review (Society for Industrial and Applied Mathematics) 33, 674 (1991), Classical and Quantum Gravity **12**, 1339 (1995), Physics World, January 1995 page 42 and Physics Today (Feb 2002). I am the editor of the newsletter of the Topical Group on Gravitation of the American Physical Society. As such, I have edited 12 numbers of the newsletter. I also coauthored a section of the GRASP manual (GRASP is a computer package produced by Bruce Allen for the processing of gravitational wave data <http://www.lsc-group.phys.uwm.edu/~ballen/grasp-distribution>).

## 2 Books:

"Loops, Knots, Gauge Theories and Quantum Gravity", a book coauthored with Rodolfo Gambini, published by Cambridge University Press (1996).

"Colliding black holes and gravitational waves: five lectures for undergraduates on general relativity" a book in preparation.

## 3 Research Papers:

1) "The parallel transport of a vector, its physical meaning in three geometrical unified field theories", J. Pullin, General Relativity and Gravitation 181, 1087-1091. (1986).

2) "New Weyl theory: geometrization of electromagnetism and gravitation. Motivation and Classical results", J.Pullin, O. Bressan, General Relativity and Gravitation 191, 601-611. (1987).

3) "The weak energy condition and singularities in classical, free, N=1 supergravity" J. Pullin, Annalen der Physik, 7,46, 167-172. (1989).

4) "Massive solutions to Einstein Cartan Dirac Theory" J. Pullin, Annalen der Physik 7,46,559-560. (1989).

- 5) "Solitonic perturbations in perfect fluid Friedmann Robertson Walker cosmologies" M.Diaz, R. Gleiser, J. Pullin, Classical and Quantum Gravity 41, L23-L28. (1987).
- 6) "Stochastic Processes in cosmology", M.Caceres, M. Diaz, J. Pullin, Physics Letters A, 1231, 329-335. (1987).
- 7) "Solitonic solutions in the Kaluza Klein formalism as cosmological models in General Relativity" M.Diaz, R.Gleiser, J.Pullin, Journal of Mathematical Physics 291, 591 (1988).
- 8) "General Solution for slowly rotating perfect fluid spheres in general relativity" M.Diaz, J.Pullin, Astrophysics and Space Science 148, 385-388. (1988).
- 9) "Solitonic instabilities in DeSitter spacetime", M.Diaz, R.Gleiser, J.Pullin, Physics Letters A, 127,60-64. (1987).
- 10) "Cosmic no hair theorems and solitonic instabilities of DeSitter spacetime" M.Diaz, R.Gleiser, J.Pullin, proceedings of the VI SILARG, M. Novello editor (World Scientific:Singapore) p 133-143. (1988).
- 11) " Soliton collision in cosmologies with matter " J.Cruzate, M.Diaz, R.Gleiser, J.Pullin, Classical and Quantum Gravity 5, 883-889. (1988).
- 12) " Finite Perturbations in Perfect fluid Friedmann Robertson Walker models " M.Diaz, R.Gleiser, J.Pullin, The Astrophysical Journal 339, 1-11. (1988).
- 13) "Brans Dicke solitons as finite perturbations of perfect fluid FRW models in General Relativity" M.Diaz, R.Gleiser, J.Pullin, Classical and Quantum Gravity 1, 641-643. (1988).
- 14) "Solitonic inhomogeneities in the standard model", J. Cruzate, M. Diaz, R. Gleiser, J. Pullin, Boletin de la Asociacion Argentina de Astronomia 1987 p 93.
- 15) "Solitary waves of stiff matter in general relativity", J. Pullin, Astrophysics and Space Science 164, 309-321. (1990)
- 16) "Solitons in cosmology", M. Diaz, R. Gleiser, J. Pullin. "Valparaiso 1987, Proceedings of the Latin American Meeting on High Energy Physics", p419-441.
- 17) "A note on Einstein Maxwell solitons and vacuum to electrovac solutions transforms", R. Gleiser, G. Gonzalez, J. Pullin, Astrophysics and Space Science 149, 369-373. (1988).
- 18) "Higher order poles in the Belinskii-Zakharov Inverse Scattering Method" R. Gleiser, G. Gonzalez, J. Pullin, Physics Letters A, 130, 206-210. (1988).
- 19) "On the existence of crack of doom singularities in some cosmological models with extra dimensions" R. Gleiser, J. Pullin, Physics Letters A 135, 11-16. (1989).
- 20) "Coleman Weinberg Symmetry Breaking in a rotating spacetime" L. Chimento, A. Jakubi, J. Pullin Classical and Quantum Gravity 6, L45-L48. (1989).
- 21) "On completeness and singularities in some homogeneous cosmologies and their inhomogeneous generalizations" M.Diaz, R. Gleiser, G. Gonzalez, J. Pullin, Physical Review D 40, 1033-1036. (1989).

- 22) "Appell Rings in General Relativity", R. Gleiser, J. Pullin, *Classical and Quantum Gravity* 6, 977-985. (1989).
- 23) "Anisotropic four loop superstring cosmologies" R. Gleiser, J. Pullin, *Astrophysics and Space Science* 154, 337-341. (1989).
- 24) "One soliton solutions of the vacuum Einstein Equations with Alekseev's inverse scattering technique" A. Dagotto, R. Gleiser, G. Gonzalez, J. Pullin, *Physics Letters A* 146, 15-20. (1990).
- 25) "Are cosmic strings gravitationally stable topological defects?" R. Gleiser, J. Pullin, *Class. Quan. Grav.* 6, L141-L144. (1989).
- 26) "Gravitational radiation from cosmic string splitting" R. Gleiser, J. Pullin, Honorable mentioned essay in the 1989 Gravity Research Foundation essay competition.
- 26) "Comment on 'A remark on the gravitational field produced by an infinite straight string'" *American Journal of Physics*, 59, 370-371. (1991).
- 27) "Gravitational particle production by cosmic string creation", V. Husain, J. Pullin, E. Verdaguer, *Phys. Lett. B* 232, 299-301. (1989).
- 28) "Bianchi Cosmologies: A new description", A. Ashtekar, J. Pullin, *Ann. Israel Phys. Soc.* 9, 65-77 (1990) "Developments in General Relativity, astrophysics and quantum theory: A jubilee volume in honour of Nathan Rosen" F. Cooperstock, L. P. Horwitz and J. Rosen.
- 29) "Quantum theory of spacetimes with one Killing vector field" V. Husain, J. Pullin, *Modern Physics Letters A* 5, 733-741. (1990)
- 30) "BRST analysis of 2+1 gravity", G. Gonzalez, J. Pullin, *Physical Review D* 42, 3395-3400. (1990).
- 31) "Gravitational particle production in the formation of global monopoles and domain walls", E. Verdaguer, J. Pullin, *Physics Letters B* 246, 371-376. (1990).
- 32) "Intersecting N loop solutions to the Hamiltonian constraint of quantum gravity", B. Bruegmann, J. Pullin, *Nuclear Physics B* 363, 221-244. (1991).
- 33) "Time and chaos in General Relativity", Proceedings of the VII Silarg, M. Rosebaum et al. editors, World Scientific, Singapore (1991) p 189-197.
- 34) "On the constraints of quantum gravity in the loop space representation" B. Bruegmann, J. Pullin, *Nuclear Physics B* 390, 399-438 (1993).
- 35) "Gravitational particle production by cosmic textures", J. Pullin, E. Verdaguer, *Mod. Phys. Lett.* **A7**, 181 (1993).
- 36) "Knot invariants as nondegenerate states of four dimensional quantum gravity", B. Brügmann, R. Gambini, J. Pullin, Proceedings of the XXth DGM, Twentieth international Symposium on differential geometric methods in theoretical physics, S. Catto, A. Rocha, eds. World Scientific (1992) p 784-793.
- 37) "Knot invariants as nondegenerate quantum geometries" R. Gambini, B. Bruegmann, J. Pullin, *Physical Review Letters* **68**, 431-434 (1992).

- 38) “The emergence of radiation from gravitational potential wells: absence of  $\omega M$  effects”, R. Price, J. Pullin, *Physical Review* **D46**, 2497-2506 (1992).
- 39) “Jones polynomials for intersecting knots as physical states of quantum gravity”, B. Bruegmann, R. Gambini, J. Pullin, *Nuclear Physics* B385, 587-603 (1992).
- 40) “How the Jones Polynomial gives rise to physical states of Quantum General Relativity” B. Bruegmann, R. Gambini, J. Pullin, Third prize in the 1992 Gravity Research Foundation essay competition, *General Relativity and Gravitation* **25**, 1-6 (1993).
- 41) “Quantum Einstein-Maxwell fields: a unified view from loop space”, R. Gambini, J. Pullin *Physical Review* D47, R5214 (1993).
- 42) “Knots and gravity” J. Pullin, *Encyclopaedia, Proceedings of the Utah academy of Arts, Sciences and Letters* **69**, 309 (1992).
- 43) “The escape of gravitational radiation from the field of massive bodies”, P. Kundu, R. Price, J. Pullin, *Physical Review Letters* **70**, 1572-1575 (1993).
- 44) “Knot theory and quantum gravity in loop space: a primer’ J. Pullin, in Fifth Mexican School of Particles and Fields, J. L. Lucio and M. Vargas editors, AIP Conference Proceedings 317, American Institute of Physics Press (1994).
- 45) “Knot polynomials as states of nonperturbative four dimensional quantum gravity” J. Pullin, “Quantum topology-Proceedings of the AMS Special Session on Knots and Topological Field Theory”, R. Baadhio, L. Kauffman, eds. World Scientific, Singapore (1993).
- 46) “Late-time behavior of stellar collapse and explosions: I. Linearized perturbations” C. Gundlach, R. Price, J. Pullin, *Physical Review* **D49**, 883-889 (1994).
- 47) “Late-time behavior of stellar collapse and explosions: II. Nonlinear evolution” C. Gundlach, R. Price, J. Pullin, *Physical Review* **D49**, 890-899 (1994).
- 48) “Bianchi Cosmologies: New variables and a hidden supersymmetry”, O. Obregón, J. Pullin, M. Ryan, *Physical Review* **D48**, 5642-5647 (1993).
- 49) “The Gauss linking number in Quantum Gravity” R. Gambini, J. Pullin, in “Knots and Quantum Gravity”, J. Baez, editor, Oxford University Press (1993).
- 50) “Extended loops: a new arena for nonperturbative quantum gravity”, C. Di Bartolo, R. Gambini, J. Griego, J. Pullin, *Physical Review Letters*, 72, 3297 (1994).
- 51) “The constraint algebra of Quantum Gravity in the Loop Representation”, A. Garat, R. Gambini, J. Pullin *International Journal of Modern Physics* **D4**, 589 (1995).
- 52) “Colliding black holes: the close limit”, R. Price, J. Pullin, *Physical Review Letters*, 72, 3638 (1994).
- 53) “Recent developments in canonical quantum gravity”, J. Pullin, “CAM 94, Physics Meeting”, A. Zepeda, editor, AIP Conference Proceedings 342, AIP Press, page 459.
- 54) “Is there a connection between no-hair behavior and universality in gravitational collapse?” J. Pullin, *Physics Letters* **A204**, 7 (1995).
- 55) “The space of states of quantum gravity in terms of loops and extended loops: some

remarks” C. Di Bartolo, R. Gambini, J. Griego, J. Pullin, *Journal of Mathematical Physics*, **36**, 6511 (1995).

56) “Head on collision of two black holes: comparison of different approaches” P. Anninos, R. Price, J. Pullin, E. Seidel, W.-M. Suen, *Physical Review* **D52**, 4462 (1995).

57) “Colliding black holes with linearized gravity”, J. Pullin, *Fields Institute Communications*, **15**, 117 (1997).

58) “Towards a loop representation of quantum canonical supergravity” D. Armand-Ugon, R. Gambini, O. Obregón, J. Pullin, *Nuclear Physics* **B460**, 615-631 (1996).

59) “Lattice knot theory and quantum gravity in the loop representation” H. Fort, R. Gambini, J. Pullin, *Physical Review* **D56**, 2127-2143 (1997).

60) “Rigorous solution of the quantum Einstein Equations” R. Gambini, J. Pullin, *Physical Review* **D54**, R5935 (1996).

61) “Second order perturbations of a Schwarzschild black hole”, R. Gleiser, O. Nicasio, R. Price, J. Pullin, *Class. Quan. Grav.* **13**, L117-L124 (1996).

62) “Analytic approximations to the spacetime of a critical gravitational collapse”, R. Price, J. Pullin, *Physical Review* **D54**, 3792-9 (1996).

63) “Variational derivations of exact skein relations for Chern–Simons theories”, R. Gambini, J. Pullin, *Commun. Math. Phys.* **185**, 621-640 (1997).

64) “The Collision of boosted black holes” J. Baker, A. Abrahams, P. Anninos, R. Price, J. Pullin, E. Seidel, *Physical Review* **D55**, 829 (1997).

65) “Knot theory and the dynamics of quantum gravity” R. Gambini, J. Pullin, *Classical and Quantum Gravity* **13**, L129-134 (1996)

66) “Large quantum gravity effects: backreaction on matter” R. Gambini, J. Pullin, *Modern Physics Letters* **A12** 2407-2414 (1997)

67) “Colliding black holes: how far can the close approximation go?” R. Gleiser, O. Nicasio, R. Price, J. Pullin, *Phys. Rev. Lett.* **77**, 4483-6 (1996).

68) “Instability of free evolution in double null coordinates” C. Gundlach, J. Pullin, *Classical and Quantum Gravity* **14**, 991-997 (1997).

69) “Chern–Simons states in spin-network quantum gravity”, J. Griego, R. Gambini, J. Pullin, *Physics Letters* **B413**, 260-266 (1997).

70) “Canonical quantum gravity with new variables and loops: a report”, J. Pullin, in “Gravitation and Cosmology”, S. Dhurandhar and T. Padmanabhan (Eds), Kluwer Academic Publishing, Amsterdam 1997, pp 199-210.

71) “Evolving the Bowen–York initial data for colliding spinning black holes” R. Gleiser, O. Nicasio, R. Price, J. Pullin, *Physical Review* **D57**, 3401-3407 (1998).

72) “Should one quantize gravitationally collapsing shells?” G. Khanna, J. Pullin, (in preparation).

73) “Colliding black holes: second order boosted results”, R. Gleiser, O. Nicasio, R. Price, J. Pullin, *Physical Review* **D59**, 044024 (1999).

- 74) “On the consistency of the constraint algebra in spin network quantum gravity”, R. Gambini, J. Lewandowski, D. Marolf, J. Pullin, *International Journal of Modern Physics D* **7** 97 (1997).
- 75) “A spin network generalization of the Jones Polynomial and Vassiliev invariants”, J. Griego, R. Gambini, J. Pullin, *Physics Letters B* **425**, 41 (1998).
- 76) “Yang–Mills analogues of the Immirzi ambiguity”, R. Gambini, O. Obregón, J. Pullin, *Physical Review D* **59** 047505, (1999).
- 77) “Vassiliev invariants: a new framework for quantum gravity”, J. Griego, R. Gambini, J. Pullin, *Nuclear Physics B* **534**, 675-696 (1998).
- 78) “ $\Lambda = 0$  from canonical quantum gravity? R. Gambini, J. Pullin, *Physics Letters B* **437**, 279 (1998).
- 79) “Inspiralling black holes: the close limit” G. Khanna, J. Baker, R. Gleiser, O. Nicasio, H.-P. Nollert, P. Laguna, J. Pullin, *Physical Review Letters* **83**, 3581 (1999). Commented in *Nature* <http://helix.nature.com/nsu/991111/991111-3.html>.
- 80) “Colliding black holes: analytic insights”, J. Pullin, in “Gravitation and relativity: at the turn of the millenium”, N. Dahdich, J. Narlikar, editors, *Proceedings of the 15th International Conference on General Relativity and gravitation*, IUCAA publishing, Poona, India 1998.
- 81) “Evolving the Bowen–York initial data for boosted black holes” G. Khanna, R. Gleiser, J. Pullin, submitted to *Physical Review D*.
- 82) “The imposition of Cauchy data to the Teukolsky equation III: The rotating case”, M. Campanelli, C. Lousto, J. Baker, G. Khanna, J. Pullin, *Physical Review D* **58** 084019 (1998).
- 83) “An overview of canonical quantum gravity”, J. Pullin, *International Journal of Theoretical Physics* **38**, 1051 (1999).
- 84) “Gravitational radiation from Schwarzschild black holes: the second order formalism”, R. Gleiser, O. Nicasio, R. Price, J. Pullin, *Physics Reports*, **325**, 41-81 (2000).
- 85) “Close limit approximation to neutron star collisions” G. Allen, N. Andersson, K. Kokkotas, P. Laguna, J. Pullin, J. Ruoff, *Physical Review D* **60**, 104021 (1999).
- 86) “Canonical quantum gravity in the Vassiliev invariants arena: I. Kinematical structure” C. Di Bartolo, R. Gambini, J. Griego, J. Pullin, *Classical and Quantum Gravity* **17**, 3211-3237 (2000).
- 87) “Canonical quantum gravity in the Vassiliev invariants arena: II. Constraints, habitats and consistency of the constraint algebra” C. Di Bartolo, R. Gambini, J. Griego, J. Pullin, *Classical and Quantum Gravity* **17**, 3239-3264 (2000).
- 88) “Canonical quantum gravity in the Vassiliev invariants arena: III. The 2 + 1 dimensional analogy” C. Di Bartolo, R. Gambini, J. Griego, J. Pullin (in preparation).
- 89) “Nonstandard optics from quantum spacetime” R. Gambini, J. Pullin, *Physical Review D* **59**, 124021 (1999).
- 90) “Consistent theory of canonical quantum gravity in the space of Vassiliev invariants”

- C. Di Bartolo, R. Gambini, J. Griego, J. Pullin *Physical Review Letters* **84**, 2314 (2000).
- 91) “Skein relations and the quantization of gravity” R. Gambini, O. Obregón, J. Pullin (in preparation).
- 92) “The collision of counterrotating black holes” P. Anninos, S. Brandt, G. Khanna, J. Baker, R. Price, R. Gleiser, R. Price, J. Pullin, E. Seidel (in preparation).
- 93) “The general solution of the quantum Einstein equations?”, R. Gambini, J. Pullin, *Classical and Quantum Gravity* **13**, L125 (1996).
- 94) “The close limit of colliding black holes: an update” J. Pullin, *Progress of Theoretical Physics Supplement* **136**, 107 (1999).
- 95) “Close limit of inspiralling black hole collisions: non-spinning holes” G. Khanna, R. Gleiser, R. Price, J. Pullin, *New Journal of Physics* **2**, 3 (2000).
- 96) “Quantum gravity experimental physics?” R. Gambini, J. Pullin, Fourth prize in the 1999 Gravity Research Foundation essay competition, *General Relativity and Gravitation* **31**, 1631 (1999).
- 97) “Second order perturbations of Schwarzschild black holes: the odd parity case”, R. Gleiser, C. Nicasio, J. Pullin, *General Relativity and Gravitation*, **32**, 2021-2044 (2000).
- 98) “The Teukolsky equation in Kerr–Schild coordinates” M. Campanelli, M. Ryan, P. Laguna, J. Pullin, *Classical and Quantum Gravity* **18** 1543-1554 (2001).
- 99) ”A cure for unstable numerical evolutions of single black holes: adjusting the standard ADM equations”, B. Kelly, P. Laguna, K. Lockitch, J. Pullin, E. Schnetter, D. Shoemaker, M. Tiglio (preprint).
- 100) “Excitation of Neutron Star Oscillations by an Orbiting Particle”, J. Ruoff, P. Laguna, J. Pullin, *Physical Review* **D63** 064019 (2001).
- 101) “Making classical and quantum canonical general relativity computable through a power series expansion in the inverse cosmological constant,” R. Gambini, J. Pullin *Physical Review Letters* **85**, 5272 (2000).
- 102) “The large cosmological constant approximation to classical and quantum gravity: model examples”, R. Gambini, J. Pullin *Classical and Quantum Gravity* **21**, 4515-4539 (2000).
- 103) “Grazing collisions of black holes via the excision of singularities”, S. Brandt, R. Correll, R. Gomez, M. Huq, P. Laguna, L. Lehner, P. Marronetti, D. Neilsen, R. Matzner, J. Pullin, E. Schnetter, D. Shoemaker, J. Winicour, *Physical Review Letters* **85**, 5496 (2000).
- 104) “Consistent discretizations for classical and quantum general relativity,” R. Gambini and J. Pullin, gr-qc/0108062.
- 105) “A cure for unstable numerical evolutions of single black holes: adjusting the standard ADM equations,” B. Kelly, P. Laguna, K. Lockitch, J. Pullin, E. Schnetter, D. Shoemaker and M. Tiglio, *Phys. Rev. D* **64**, 084013 (2001)
- 106) “Lorentz violations in canonical quantum gravity”, R. Gambini, J. Pullin, submitted.

107) “A finite spin-foam based model of three and four dimensional quantum gravity”  
R. Gambini, J. Pullin, submitted.

108) “Consistent discretizations in classical and quantum general relativity” R. Gambini,  
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109) “Close limit evolution of Kerr-Schild type initial data for binary black holes”,  
O. Sarbach, M. Tiglio and J. Pullin, to appear in Physical Review D.