Bibliography of Publications related to Classical Self-dual variables and Loop Quantum Gravity *

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Abstract

This bibliography attempts to give a comprehensive overview of all the literature related to what is known as the Ashtekar-Sen connection and the Rovelli-Smolin loop variables, from which the program currently known as *Loop Quantum Gravity* emerged. The original version was compiled by Peter Hübner in 1989, and it has been subsequently updated by Gabriela González, Bernd Brügmann, Monica Pierri, Troy Schilling, Christopher Beetle, Alejandro Corichi and Alberto Hauser. The criteria for inclusion in this list are the following: A paper in the classical theory is included if it deals with connection variables for gravity. If the paper is in the quantum domain, it is included when it is related directly with gravity using connection/loop variables, with mathematical aspects of connections, or when it introduces techniques that might be useful for the construction of the (loop) quantum theory of gravity. Information about additional literature, new preprints, and especially corrections are always welcome.

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Pointers

Here are some suggestions, intended to serve as entry points into the literature.

First of all, for a complete and authoritative presentation of canonical gravity in the Ashtekar variables there is of course Ashtekar's latest book [2] which appeared in 1991.

Rather complete reviews of canonical gravity in the Ashtekar variables can be found in Rovelli [218], Kodama [268] and Smolin [282]. For a critical appraisal of canonical quantum gravity see Kuchař [316]. An overview over different approaches to quantum gravity is given by Isham in [12].

Some now classic treatments of the two most prominent viewpoints towards LQG, namely the 'connection' and 'loop-spin networks ' representations are given by Ashtekar et. al. [427] on one side, and De Pietri and Rovelli [501] on the other. A *dialogue concerning the two chief World systems* is given in [562]. Note that nowadays the distinction between connection and loop representations is no longer an issue.

Let us now mention some of the most recent introductory literature to loop quantum gravity. Firstly, there are several primer introductions to the subject, written for different purposes. For instance, there was for many years the canonical primer by Pullin [413]. Unfortunately, it is now somewhat dated. Good introductions to spin networks and recoupling theory needed in LQG are given by the primers by Rovelli [946] and Major [680]. There are recent up-to-date accounts written for non-experts that give nice motivation, historical perspective and an account of recent and in progress work from two different perspectives by Ashtekar [1084] and Smolin [1165]. There are also technical reviews that give many details and are certainly a good read such as the one by Ashtekar and Lewandowski [979], Perez [1154], Thiemann [890], and (from an outside perspective) by Nicolai *et al* [1063].

Several monographs have been written, including some recent and updated. These monographs approach and present the subject from different perspectives depending, of course, on the authors own taste. From these, it is worth mentioning two. The first one by Rovelli is physically motivated but is not so heavy in its mathematical treatment, and can be found in the Book [30]. A mathematically precise treatment, but not for the faint of heart is given by the monograph by Thiemann [958]. There have been also several nice reviews that motivate and give a birdseye view of the subject by Rovelli [726], [637] and Pullin [883]. Finally, there are several accounts on comparisons between loop quantum gravity and other approaches, such as string theory. On chronological order, we have a review by Rovelli [638], an entertaining dialog also by Rovelli [885] and a critical assessment by Smolin [955].

It is generally regarded that LQG has had three main achievements: i) Quantization of geometric quantities, ii) Black hole entropy and iii) Singularity avoidance in cosmology and collapse. All of these achievements are discussed in the review articles, but perhaps the best place to look at are the original references.

For the quantization of geometrical quantities the original reference is by Rovelli and Smolin [469] in the "spin network representation" and by Ashtekar-Lewandowski in the connection representation" [551], for the area operator and in [469] and [577] for the volume operator. There are also operators associated to length [641] and angles [681].

Black holes in loop quantum gravity were first considered by Rovelli in [538]. A systematic treatment of the boundary conditions and the quantum geometry of the horizon was given in [605, 695, 694]. Recently, a mistake in the original entropy computation was corrected in [996] and [1019]. In particular, this corrects the value of the Barbero-Immirzi parameter, a free parameter of the theory. The existence of this parameter was first pointed out by Barbero [433] and its physical significance by Immirzi [574]. The BH calculation was suggested out as a way of computing its value in [605]. Other proposals include asymptotic quasinormal modes [853], and "effective field theory methods" [1156, 1117].

Loop Quantum Cosmology (LQC) was born as a symmetry reduction of the full theory in the work by Bojowald [700] (For some comments regarding this reduction see [1092] and [1090]). The curvature at the big bang is bounded and the absence of the initial singularity arises naturally when the dynamical evolution continues across the 'would be singularity' [743]. A possible mechanism for inflation was suggested in [798]. A nice review of these main results is given in [988].

Web Pages

Nowadays there are several pages that contain information about loop quantum gravity and spin foams, maintained by several people. First, there is the Wikipedia entry:
`http://en.wikipedia.org/wiki/Loop_quantum_ gravity`
There is the page maintained by Dan Christensen,
`http://jdc.math.uwo.ca/spin-foams/`
Seth Major,
`http://academics.hamilton.edu/physics/smajor/resources.html`
and John Baez:
`http://math.ucr.edu/home/baez/QG.html`
where information about LQG and new references can be found. There is an interesting guide to bibliography on different topics by Bombelli,
`http://www.phy.olemiss.edu/~luca/list.html`
Finally, the URL for *this* guide is,
`http://www.nucleares.unam.mx/~corichi/lqgbib.pdf`

Books and Dissertations

1. Abhay Ashtekar and invited contributors. *New Perspectives in Canonical Gravity.* Lecture Notes. Napoli, Italy: Bibliopolis, February 1988. [Errata published as Syracuse University preprint by Joseph D. Romano and Ranjeet S. Tate.]

2. Abhay Ashtekar. *Lectures on non-perturbative canonical gravity.* (Notes prepared in collaboration with R. Tate). Advanced Series in Astrophysics and Cosmology-Vol. 6. Singapore: World Scientific, 1991.

3. J.C. Baez. *Knots and Quantum Gravity.* Oxford U. Press. (1994). Also at: `http://math.ucr.edu/home/baez/kqg.html`

4. J.C. Baez and J. Muniain. *Gauge Fields, Knots, and Gravity.* World Scientific Press (1994).

5. M. Bojowald. *Quantum geometry and symmetry*, Ph.D. Thesis, RWTH Aachen, 2000.

6. R. Borissov. *Quantization of Gravity: In search of the space of physical states.* Ph.D. Thesis, Temple U. (1997).

7. O. Boström. *Classical aspects on the road to quantum gravity.* Ph.D. Thesis, Institute of Theoretical Physics, Göteborg (1994).

8. B. Brügmann. *On the constraints of quantum general relativity in the loop representation.* Ph.D. Thesis, Syracuse University (May 1993)

9. R. Capovilla. *The self-dual spin connection as the fundamental gravitational variable.* Ph.D. Thesis, University of Maryland (1991).

10. A. Corichi, *Interplay Between Topology, Gauge Fields And Gravity*, Ph.D. Thesis, Penn State U. (1997). `http://cgpg.gravity.psu.edu/archives/thesis/1997/corichi.pdf`

11. O. Dreyer, *Isolated horizons and black hole entropy*, Ph.D. Thesis, Penn State University. `http://cgpg.gravity.psu.edu/archives/thesis/2001/dreyer.pdf`

12. J. Ehlers and H. Friedrich, eds. *Canonical Gravity: From Classical to Quantum.* Lecture Notes in Physics 434, (Springer-Verlag, Berlin, 1995).

13. K. Ezawa. Nonperturbative Solutions for Canonical Quantum Gravity: an Overview. Ph.D. Thesis, Osaka U (January 1996). gr-qc/9601050.

14. G. Fülöp. *Supersymmetries and Ashtekar's Variables.* Licentiate Thesis, I.T.P. Göteborg (1993).

15. R. Gambini and J. Pullin. *Loops, Knots, Gauge Theory and Quantum Gravity.* Cambridge, Cambridge University Press (1996).

16. N. Grot. *Topics in loop quantum gravity*, Ph.D. Thesis, University of Pittsburgh. (1998). http://artemis.phyast.pitt.edu/thesis/norbert.ps

17. V. Husain. *Investigations on the canonical quantization of gravity.* Ph.D. Thesis, Yale University (1989).

18. J. Iwasaki. *On Loop-Theoretic Frameworks of Quantum Gravity.* Ph.D. Thesis, University of Pittsburgh (April 1994). http://artemis.phyast.pitt.edu/thesis/iwasaki.pdf

19. S. Koshti. *Applications of the Ashtekar variables in Classical Relativity.* Ph. D. Thesis, University of Poona (June 1991).

20. K. Krasnov, *Spin foam models*, Ph.D. Thesis, Penn State U. (1999). http://cgpg.gravity.psu.edu/archives/thesis/1999/kirill.pdf

21. Yi Ling, *Extending Loop Quantum Gravity to Supergravity*, Ph.D. Thesis, Penn State U. (2002). http://cgpg.gravity.psu.edu/archives/thesis/2002/ling.pdf

22. E. R. Livine, *Loop gravity and spin foam: Covariant methods for the non-perturbative quantization of general relativity.* (In French), arXiv:gr-qc/0309028.

23. Seth Major *q-Quantum Gravity*, Ph. D. Thesis, Penn State U. (1997). http://cgpg.gravity.psu.edu/archives/thesis/1997/seth.pdf

24. H.J. Matschull. *Kanonishe Formulierung von Gravitations und Supergravitations Theorien.* Ph.D. Thesis, Hamburg University (July 1994), ISSN 0418-983.

25. H.A, Morales-Técotl. *On Spacetime and Matter at Planck Lenght.* Ph. D. Thesis SISSA/ISAS (January 1994).

26. D. Oriti, Spin foam models of quantum space-time, (Cambridge U., DAMTP),. Nov 2003. 335pp. Ph.D. Thesis. e-Print Archive: gr-qc/0311066

27. P. Peldán. *From Metric to Connection: Actions for gravity, with generalizations.* Ph.D. Thesis I.T.P. Göteborg (1993) ISBN 91-7032-817-X.

28. A. Perez, *Spin foam models for quantum gravity*, Ph.D. Thesis, University of Pittsburgh (2001). http://artemis.phyast.pitt.edu/thesis/perez.ps

29. Paul. A. Renteln. *Non-perturbative approaches to Quantum Gravity.* Ph.D. Thesis, Harvard University (1988).

30. C. Rovelli. *Quantum Gravity*, Cambridge U. Press (2004). For an online version see: http://www.cpt.univ-mrs.fr/~rovelli/book.pdf

31. D. Rayner. *New variables in canonical quantisation and quantum gravity.* Ph.D. Thesis, University of London (1991).

32. J. D. Romano. *Geometrodynamics vs. Connection Dynamics (in the context of (2+1)- and (3+1)-gravity).* Ph.D. Thesis, Syracuse University (1991), see also gr-qc/9303032

33. H. Sahlmann. *Coupling Matter to Loop Quantum Gravity.* Ph.D. Thesis, Universitaet Potsdam (2002).

34. V.O. Soloviev. *Boundary values as Hamiltonian Variables. I. New Poisson brackets.* Ph.D. IHEP93-48, *J. Math. Phys.* **34**, 5747 (hep-th/9305133)).

35. C. Soo. *Classical and quantum gravity with Ashtekar variables.* Ph.D. Thesis, Virginia Polytechnic Institute and State University. VPI-IHEP-92-11 (July 1992)

36. R.S. Tate. *An algebraic approach to the quantization of constrained systems: finite dimensional examples.* Ph.D. Thesis, Syracuse University (Aug. 1992), gr-qc/9304043

37. T. Thiemann. *On the canonical quantization of gravity in the Ashtekar framework.* Ph.D. Thesis, Aachen T. Hochschule, 1993.

38. T. Thiemann, *Modern non-perturbative quantum general relativity*, Cambridge U. Press (2005).

39. J. Willis, *On the Low-Energy Ramifications and a Mathematical Extension of Loop Quantum Gravity*, Ph.D. Thesis, Penn State U. (2004). http://cgpg.gravity.psu.edu/archives/thesis/2004/willis_thesis.pdf

40. O. Winkler

41. J. Wisniewski, *2+1 General Relativity: Classical and Quantum*, Ph.D. Thesis, Penn State U. (2002). http://cgpg.gravity.psu.edu/archives/thesis/2002/wisniewski.pdf

42. J. A. Zapata, *A Combinatorial Approach To Quantum Gauge Theories And Quantum Gravity*, Ph.D. Thesis, Penn State U. (1998). http://cgpg.gravity.psu.edu/archives/thesis/1998/zapata.pdf

43. J.J. Zegwaard. *The Loop Representation for Canonical Quantum Gravity and its Interpretation.* Ph.D. Thesis, Utrecht University (January 1994). ISBN 90-393-0070-4.

Papers

1977

44. J. F. Plebaǹski, On the separation of Einstein Substructure, *J. Math. Phys.* **12**, (1977), 2511.

1980

45. Paul Sommers. Space spinors. *J. Math. Phys.* **21**(10):2567–2571, October 1980.

1981

46. Amitabha Sen. On the existence of neutrino "zero-modes" in vacuum spacetimes. *J. Math. Phys.* **22**(8):1781–1786, August 1981.
47. R. Giles. The reconstruction of gauge potentials from Wilson loops. *Phys. Rev.* **D24**: 2160-2168 (1981).

1982

48. Abhay Ashtekar and G.T. Horowitz. On the canonical approach to quantum gravity. *Phys. Rev.* **D26**: 3342–3353, 1982.
49. Amitabha Sen. Gravity as a spin system. *Phys. Lett.* **B119**:89–91, December 1982.

1984

50. A. Ashtekar. On the Hamiltonian of general relativity. *Physica* **A124**:51–60, 1984.
51. A. Ashtekar and G.T. Horowitz. Phase space of general relativity revisited: A canonical choice of time and simplification of the Hamiltonian. *J. Math. Phys.* **25**:1473-1480, (1984).
52. E. T. Newman. Report of the workshop on classical and quantum alterate theories of gravity. In B. Bertotti, F. de Felice, and A. Pascolini, editors, *The Proceedings of the 10th International Conference on General Relativity and Gravitation*, Amsterdam, 1984.

1986

53. A. Ashtekar. New variables for classical and quantum gravity. *Phys. Rev. Lett.* **57**(18):2244–2247, November 1986.
54. A. Ashtekar. Self-duality and spinorial techniques in the canonical approach to quantum gravity. In C. J. Isham and R. Penrose, editors, *Quantum Concepts in Space and Time*, pages 303–317. Oxford University Press, 1986.
55. Robert M. Wald. Non-existence of dynamical perturbations of Schwarzschild with vanishing self-dual part. *Class. Quan. Grav.* **3**(1):55–63, January 1986.

1987

56. A. Ashtekar. New Hamiltonian formulation of general relativity. *Phys. Rev.* **D36**(6):1587–1602, September 1987.
57. A. Ashtekar. Einstein constraints in the Yang-Mills form. In G. Longhi and L Lusanna, editors, *Constraint's Theory and Relativistic Dynamics*, Singapore, 1987. World Scientific.
58. Abhay Ashtekar, Pawel Mazur, and Charles G. Torre. BRST structure of general relativity in terms of new variables. *Phys. Rev.* **D36**(10):2955–2962, November 1987.
59. John L. Friedman and Ian Jack. Formal commutators of the gravitational constraints are not well-defined: A translation of Ashtekar's ordering to the Schrödinger representation. *Phys. Rev.* **D37**(12):3495–3504, June 1987.
60. Kazuo Ghoroku. New variable formalism of higher derivative gravity. *Phys. Lett.* **B194**:535-538, 1987
61. Ted Jacobson and Lee Smolin. The left-handed spin connection as a variable for canonical gravity. *Phys. Lett.* **B196**(1):39–42, September 1987.
62. Joseph Samuel. A Lagrangian basis for Ashtekar's reformulation of canonical gravity. *Pramāna-J Phys.* **28**(4):L429-L432, April 1987.
63. N. C. Tsamis and R. P. Woodard. The factor ordering problem must be regulated. *Phys. Rev.* **D36**(12):3641–3650, December 1987.

1988

64. Abhay Ashtekar. A $3+1$ formulation of Einstein self-duality. In J. Isenberg, editor, *Mathematics and General Relativity*, Providence, 1988. American Mathematical Society.

65. Abhay Ashtekar. Microstructure of space-time in quantum gravity. In K. C. Wali, editor, *Proceedings of the Eight Workshop in Grand Unification*, Singapore, 1988. World Scientific.

66. Abhay Ashtekar. New perspectives in canonical quantum gravity. In B. R. Iyer, A. Kembhavi, J. V. Narlikar, and C. V. Vishveshwara, editors, *Highlights in Gravitation and Cosmology.* Cambridge University Press, 1988.

67. Abhay Ashtekar, Ted Jacobson, and Lee Smolin. A new characterization of half-flat solutions to Einstein's equation. *Commun. Math. Phys.* **115**:631–648, 1988.

68. I. Bengtsson. Ashtekar's variables. Goteborg-88-46 preprint (November 1988). in Proc. XXIInd Int. Symp. Ahrenshoop on Theory of Elementary Particles, Ahrenshoop, 1988, Oct. 17-21, Ed. by E. Wieczorek, Inst. f. Hochenergiephysik Berlin-Zeuthen, PHE 88-13

69. Ingemar Bengtsson. Note on Ashtekar's variables in the spherically symmetric case. *Class. Quan. Grav.* **5**(10):L139–L142, October 1988.

70. R. Gianvittorio, R. Gambini and A. Trias. *Phys. Rev.* **D38** (1988) 702

71. J. N. Goldberg. A Hamiltonian approach to the strong gravity limit. *Gen. Rel. Grav.* **20**(9):881–891, September 1988.

72. J. N. Goldberg. Triad approach to the Hamiltonian of general relativity. *Phys. Rev.* **D37**(8):2116–2120, April 1988.

73. Viqar Husain. The $G_{\mathrm{Newton}} \to \infty$ limit of quantum gravity. *Class. Quan. Grav.* **5**(4):575–582, April 1988.

74. Ted Jacobson. Fermions in canonical gravity. *Class. Quan. Grav.* **5**(10):L143–L148, October 1988.

75. Ted Jacobson. New variables for canonical supergravity. *Class. Quan. Grav.* **5**:923–935, 1988.

76. Ted Jacobson. Superspace in the self-dual representation of quantum gravity. In J. Isenberg, editor, *Mathematics and General Relativity*, Providence, 1988. American Mathematical Society.

77. Ted Jacobson and Lee Smolin. Covariant action for Ashtekar's form of canonical gravity. *Class. Quan. Grav.* **5**(4):583–594, April 1988.

78. Ted Jacobson and Lee Smolin. Nonperturbative quantum geometries. *Nucl. Phys.* **B299**(2):295–345, April 1988.

79. Hideo Kodama. Specialization of Ashtekar's formalism to Bianchi cosmology. *Prog. Theor. Phys.* **80**(6):1024–1040, December 1988.

80. Carlo Rovelli, Loop Space Representation, in *New Perspectives in canonical gravity*, Ref.[1].

81. Carlo Rovelli and Lee Smolin. Knot theory and quantum gravity. *Phys. Rev. Lett.* **61**:1155–1158, 1988.

82. Joseph Samuel. Gravitational instantons from the Ashtekar variables. *Class. Quan. Grav.* **5**:L123–L125, 1988.

83. Lee Smolin. Quantum gravity in the self-dual representation. In J. Isenberg, editor, *Mathematics and General Relativity*, Providence, 1988. American Mathematical Society.

84. C. G. Torre. The propagation amplitude in spinorial gravity. *Class. Quan. Grav.* **5**:L63–L68, 1988.

85. Edward Witten. (2+1) dimensional gravity as an exactly soluble system. *Nucl. Phys.* **B311**(1):46–78, December 1988.

1989

86. Abhay Ashtekar. Non-pertubative quantum gravity: A status report. In M. Cerdonio, R. Cianci, M. Francaviglia, and M. Toller, editors, *General Relativity and Gravitation*. Singapore: World Scientific, 1989.

87. Abhay Ashtekar. Recent developments in Hamiltonian gravity. In B. Simon, I. M. Davies, and A. Truman, editors, *The Proceedings of the IXth International Congress on Mathematical Physics*, Swansea UK, July 1988.(Bristol, UK: Adam Hilger, 1989).

88. Abhay Ashtekar. Recent developments in quantum gravity. In E. J. Fenyves, editor, *Proceedings of the Texas Symposium on Relativistic Astrophysics*. New York Academy of Science, 1989.

89. Abhay Ashtekar. Recent Developments in Quantum Gravity. *Annals of the New York Academy of Sciences* **571**, 16-26. December 1989.

90. Abhay Ashtekar, A. P. Balachandran, and S. G. Jo. The CP-problem in quantum gravity. *Int. Journ. Theor. Phys.* **A4**:1493–1514, 1989.

91. Abhay Ashtekar, Viqar Husain, Carlo Rovelli, Joseph Samuel, and Lee Smolin. $2+1$ quantum gravity as a toy model for the $3+1$ theory. *Class. Quan. Grav.* **6**:L185–L193, 1989.

92. Abhay Ashtekar and Joseph D. Romano. Chern-Simons and Palatini actions and $(2+1)$-gravity. *Phys. Lett.* **B229**(1,2):56–60, October 1989.

93. Abhay Ashtekar, Joseph D. Romano, and Ranjeet S. Tate. New variables for gravity: Inclusion of matter. *Phys. Rev.* **D40**(8):2572–2587, October 1989.

94. Abhay Ashtekar and Joseph D. Romano. Key $(3+1)$-equations in terms of new variables (for numerical relativity). Syracuse University Report (1989).

95. Ingemar Bengtsson. Yang-Mills theory and general relativity in three and four dimensions. *Phys. Lett.* **B220**:51–53, 1989.

96. Ingemar Bengtsson. Some remarks on space-time decomposition, and degenerate metrics, in general relativity. *Int. J. Mod. Phys.* **A4**(20):5527–5538, 1989.

97. Riccardo Capovilla, John Dell, and Ted Jacobson. General relativity without the metric. *Phys. Rev. Lett.* **63**(21):2325–2328, November 1989.

98. Steven Carlip. Exact quantum scattering in 2+1 dimensional gravity. *Nucl. Phys.* **B324**(1):106–122, 1989.

99. B. P. Dolan. On the generating function for Ashtekar's canonical transformation. *Phys. Lett.* **B233**(1,2):89-92 , December 1989.

100. Tevian Dray, Ravi Kulkarni, and Joseph Samuel. Duality and conformal structure. *J. Math. Phys.* **30**(6):1306–1309, June 1989.

101. N. N. Gorobey and A. S. Lukyanenko. The closure of the constraint algebra of complex self-dual gravity. *Class. Quan. Grav.* **6**(11):L233–L235, November 1989.

102. M. Henneaux, J. E. Nelson, and C. Schomblond. Derivation of Ashtekar variables from tetrad gravity. *Phys. Rev.* **D39**(2):434–437, January 1989.

103. A. Herdegen. Canonical gravity from a variation principle in a copy of a tangent bundle. *Class. Quan. Grav.* **6**(8):1111-24, (1989).

104. G. T. Horowitz. Exactly soluble diffeomorphism invariant theories. *Commun. Math. Phys.* **125**(3): 417-37, 1989.

105. Viqar Husain. Intersecting loop solutions of the Hamiltonian constraint of quantum general relativity. *Nucl. Phys.* **B313**:711–724, 1989.

106. Viqar Husain and Lee Smolin. Exactly solvable quantum cosmologies from two Killing field reductions of general relativity. *Nucl. Phys.* **B327**:205–238, 1989.

107. V. Khatsymovsky. Tetrad and self-dual formulation of Regge calculus. *Class. Quan. Grav.* **6**(12):L249–L255, December 1989.

108. Sucheta Koshti and Naresh Dadhich. Degenerate spherical symmetric cosmological solutions using Ashtekar's variables. *Class. Quan. Grav.* **6**:L223–L226, 1989.

109. Stephen P. Martin. Observables in 2+1 dimensional gravity. *Nucl. Phys.* **327**(1):78–204, November 1989.

110. L. J. Mason and E. T. Newman. A connection between Einstein and Yang-Mills equations. *Commun. Math. Phys.* **121**(4):659–668, 1989.

111. J. E. Nelson and T. Regge. Group manifold derivation of canonical theories. *Int. J. Mod. Phys.* **A4**,2021 (1989).

112. Paul Renteln and Lee Smolin. A lattice approach to spinorial quantum gravity. *Class. Quan. Grav.* **6**:275–294, 1989.

113. Amitabha Sen and Sharon Butler. The quantum loop. *The Sciences*:32–36, November/December 1989.

114. L. Smolin. Invariants of links and critical points of the Chern-Simon path integrals. *Mod. Phys. Lett.* **A4**:1091–1112, 1989.

115. L. Smolin. Loop representation for quantum gravity in 2+1 dimensions. In the *Proceedings of the John's Hopkins Conference on Knots, Topology and Quantum Field Theory*, ed. L. Lusanna (World Scientific, Singapore 1989)

116. Sanjay M. Wagh and Ravi V. Saraykar. Conformally flat initial data for general relativity in Ashtekar's variables. *Phys. Rev.* **D39**(2):670–672, January 1989.

117. Edward Witten. Gauge theories and integrable lattice models. *Nucl. Phys.* **B322**(3):629–697, August 1989.

118. Edward Witten. Topology-changing amplitudes in (2+1) dimensional gravity. *Nucl. Phys.* **B323**(1):113–122, August 1989.

1990

119. C. Aragone and A. Khouder . Vielbein gravity in the light-front gauge. *Class. Quan. Grav.* **7**:1291–1298, 1990.

120. Abhay Ashtekar. Old problems in the light of new variables. In *Proceedings of the Osgood Hill Conference on Conceptual Problems in Quantum Gravity*, eds. A. Ashtekar and J. Stachel (Birkhäuser, Boston 1991)

121. Abhay Ashtekar. Self duality, quantum gravity, Wilson loops and all that. In N. Ashby, D. F. Bartlett, and W. Wyss, editors, *Proceedings of the 12th International Conference on General Relativity and Gravitation.* Cambridge University Press, 1990.

122. Abhay Ashtekar and Jorge Pullin. Bianchi cosmologies: A new description. *Proc. Phys. Soc. Israel* **9**:65-76 (1990).

123. Abhay Ashtekar. Lessons from 2+1 dimensional quantum gravity. In *"Strings 90"* edited by R. Arnowitt et al (Singapore: World Scientific, 1990).

124. J. Ambjorn and Y. M. Makeenko, Properties Of Loop Equations For The Hermitean Matrix Model And For Two-Dimensional Quantum Gravity, *Mod. Phys. Lett.* **A5**, 1753 (1990).

125. Ingemar Bengtsson. A new phase for general relativity? *Class. Quan. Grav.* **7**(1):27–39, January 1990.

126. Ingemar Bengtsson. P, T, and the cosmological constant. *Int. J. Mod. Phys.* **A5**(17):3449-3459 (1990).

127. Ingemar Bengtsson. Self-Dual Yang-Mills fields and Ashtekar variables. *Class. Quan. Grav.* **7**:L223-L228 (1990)

128. Ingemar Bengtsson and P. Peldán. Ashtekar variables, the theta-term, and the cosmological constant. *Phys. Lett.* **B244**(2): 261-64, 1990.

129. M. P. Blencowe. The Hamiltonian constraint in quantum gravity. *Nuc. Phys.* **B341**(1):213, 1990.

130. L. Bombelli and R. J. Torrence. Perfect fluids and Ashtekar variables, with applications to Kantowski-Sachs models. *Class.Quan. Grav.* **7**:1747 (1990).

131. Riccardo Capovilla, John Dell, and Ted Jacobson. Gravitational instantons as SU(2) gauge fields. *Class.Quan. Grav.* **7**(1):L1–L3, January 1990.

132. Steven Carlip. Observables, gauge invariance and time in 2+1 dimensional gravity. *Phys. Rev.* **D42**, 2647-2654 (October 1990).

133. S. Carlip and S. P. de Alwis. Wormholes in (2+1)-gravity. *Nuc. Phys.* **B337**:681-694, June 1990.

134. G. Chapline. Superstrings and Quantum Gravity. *Mod. Phys. Lett.***A5**:2165-72 (1990).

135. F. David, Loop Equations And Nonperturbative Effects In Two-Dimensional Quantum Gravity, *Mod. Phys. Lett.* **A5**, 1019 (1990).

136. R. Floreanini and R. Percacci. Canonical algebra of GL(4)-invariant gravity. *Class.Quan. Grav.* **7**:975–984, 1990.

137. R. Floreanini and R. Percacci. Palatini formalism and new canonical variables for GL(4)-invariant gravity. *Class. Quan. Grav.* **7**:1805-18, 1990.

138. R. Floreanini and R. Percacci. Topological pregeometry. *Mod. Phys. Lett.* **A5**:2247-51, 1990.

139. Takeshi Fukuyama and Kiyoshi Kaminura. Complex action and quantum gravity. *Phys. Rev.* **D41**:1105-11, February 1990.

140. G. Gonzalez and J. Pullin. BRST quantization of 2+1 gravity. *Phys. Rev.* **D42**(10): 3395-3400 (1990). [Erratum: *Phys. Rev.* **43**:2749, April 1991].

141. N. N. Gorobey and A. S. Lukyanenko. The Ashtekar complex canonical transformation for supergravity. *Class. Quan. Grav.* **7**(1):67–71, January 1990.

142. C. Holm. Connections in Bergmann manifolds. *Int. Journ. Theor. Phys.* **A29**(1):23-36, January 1990.

143. V. Husain and K. Kuchař. General covariance, the New variables, and dynamics without dynamics. *Phys. Rev.* **D42**(12)4070-4077 (December 1990).

144. Viqar Husain and Jorge Pullin. Quantum theory of space-times with one Killing field. *Modern Phys. Lett.* **A5**(10):733-741, April 1990.

145. K. Kamimura and T. Fukuyama. Ashtekar's formalism in 1st order tetrad form. *Phys. Rev.* **D41**(6): 1885-88, 1990.

146. H. Kodama. Holomorphic wavefunction of the universe. *Phys. Rev.* **D42**:2548-2565 (October 1990).

147. Sucheta Koshti and Naresh Dadhich. On the self-duality of the Weyl tensor using Ashtekar's variables. *Class. Quan. Grav.* **7**(1):L5–L7, January 1990.

148. Noah Linden. New designs on space-time foams. *Physics World* **3**(3):30-31, March 1990.

149. N.Manojlovic. Alternative loop variables for canonical gravity. *Class. Quan. Grav.* **7**:1633-1645. (1990).

150. E. W. Mielke. Generating functional for new variables in general relativity and Poincare gauge theory. *Phys. Lett.* **A149**:345-350 (1990).

151. E. W. Mielke. Positive gravitational energy proof from complex variables? *Phys. Rev.* **D42**(10): 3338-3394 (1990).

152. Peter Peldán. Gravity coupled to matter without the metric. *Phys. Lett.* **B248**(1,2): 62-66 (1990).

153. D. Rayner. A formalism for quantising general relativity using non-local variables. *Class. Quan. Grav.* **7**(1):111–134, January 1990.

154. D. Rayner. Hermitian operators on quantum general relativity loop space. *Class. Quan. Grav.* **7**(4):651–661, April 1990.

155. Paul Renteln. Some results of SU(2) spinorial lattice gravity. *Class. Quan. Grav.* **7**(3):493–502, March 1990.

156. D.C. Robinson and C. Soteriou. Ashtekar's new variables and the vacuum constraint equations. *Class. Quan. Grav.* **7**(11): L247-L250 (1990).

157. Carlo Rovelli and Lee Smolin. Loop representation of quantum general relativity. *Nuc. Phys.* **B331**(1): 80-152, February 1990.

158. M. Seriu and H. Kodama. New canonical formulation of the Einstein theory. *Prog. Theor. Phys.* **83**(1):7-12, January 1990.

159. Lee Smolin. Loop representation for quantum gravity in $2+1$ dimensions. In *Proceedings of the 12th John Hopkins Workshop: Topology and Quantum Field Theory* (Florence, Italy), 1990.

160. C. G. Torre. Perturbations of gravitational instantons. *Phys. Rev.* **D41**(12) : 3620-3621, June 1990.

161. C. G. Torre. A topological field theory of gravitational instantons. *Phys. Lett* **B252**(2):242-246 (1990).

162. C. G. Torre. On the linearization stability of the conformally (anti)self dual Einstein equations, *J. Math. Phys.* **31**(12): 2983-2986 (1990).

163. H. Waelbroeck. 2+1 lattice gravity. *Class. Quan. Grav.* **7**(1): 751–769, January 1990.

164. M. Waldrop. Viewing the Universe as a Coat of Chain Mail. *Science* **250**:1510-1511 (1990).

165. R. P. Wallner New variables in gravity theories. *Phys. Rev.* **D42**(2):441-448 ,July 1990.

166. R.S. Ward. The SU(∞) chiral model and self-dual vacuum spaces. *Class. Quan. Grav.* **7**:L217-L222 (1990).

1991

167. V. Aldaya and J. Navarro-Salas. New solutions of the hamiltonian and diffeomorphism constraints of quantum gravity from a highest weight loop representation. *Phys. Lett.* **B259**:249-55, April 1991.

168. Abhay Ashtekar. Old problems in the light of new variables. In *Proceedings of the Osgood Hill Conference on Conceptual Problems in Quantum Gravity*, eds. A. Ashtekar and J. Stachel (Birkhäuser, Boston 1991)

169. Abhay Ashtekar. The winding road to quantum gravity. In *Proceedings of the Osgood Hill Conference on Conceptual Problems in Quantum Gravity*, eds. A. Ashtekar and J. Stachel (Birkhäuser, Boston 1991)

170. Abhay Ashtekar. Canonical Quantum Gravity. In *The Proceedings of the 1990 Banff Workshop on Gravitational Physics*, edited by R. Mann (Singapore: World Scientific, 1991), and in the *Proceedings of SILARG VIII Conference*, edited by M. Rosenbaum and M. Ryan (Singapore: World Scientific 1991).

171. A. Ashtekar, C. Rovelli and L. Smolin. Gravitons and loops. *Phys. Rev.***D44**(6):1740-55, 15 September 1991.

172. A. Ashtekar and J. Samuel. Bianchi cosmologies: the role of spatial topology. *Class. Quan. Grav.* **8** (1991) 2191–215

173. J. W. Barrett. Holonomy and path structures in general relativity and Yang-Mills theory, *Int. J. Theor. Phys.* **30**, 1171 (1991).

174. I. Bengtsson. The cosmological constants. *Phys. Lett.* **B254**:55-60, 1991.

175. I. Bengtsson. Self-duality and the metric in a family of neighbours of Einstein's equations. *J. Math. Phys.***32** (Nov. 1991) 3158–61

176. I. Bengtsson. Degenerate metrics and an empty black hole. *Class. Quan. Grav.* **8**, 1847 (1991), Goteborg-90-45 (December 1990).

177. Peter G. Bergmann and Garrit Smith. Complex phase spaces and complex gauge groups in general relativity. *Phys. Rev.* **D43**:1157-61, February 1991.

178. L. Bombelli. Unimodular relativity, general covariance, time, and the Ashtekar variables. In *Gravitation. A Banff Summer Institute*, eds. R. Mann and P. Wesson (World Scientific 1991) 221–32

179. L. Bombelli, W.E. Couch and R.J.Torrence. Time as spacetime four–volume and the Ashtekar variables. *Phys. Rev.* **D44**:2589–92 (15. Oct. 1991)

180. B. Brügmann. The method of loops applied to lattice gauge theory. *Phys. Rev.* **D43**:566-79, January 1991.

181. B. Brügmann and J. Pullin. Intersecting N loop solutions of the Hamiltonian constraint of Quantum Gravity. *Nuc. Phys.* **B363**:221-44, September 1991.

182. R. Capovilla, J. Dell, T. Jacobson and L. Mason. Self dual forms and gravity. *Class. Quan. Grav.* **8**:41-57, January 1991.

183. R. Capovilla, J. Dell and T. Jacobson. A pure spin-connection formulation of gravity. *Class. Quan. Grav.* **8**:59-74, January 1991. [Erratum, **9**, 1839 (1992)].

184. Steven Carlip. Measuring the metric in 2+1 dimensional quantum gravity. *Class. Quan. Grav.* **8**:5-17, January 1991.

185. S. Carlip and J. Gegenberg. Gravitating topological matter in 2+1 dimensions. *Phys. Rev.***D44**(2):424-28, 15 July 1991.

186. L. Crane. 2-d physics and 3-d topology. *Commun. Math. Phys.* **135**:615-640, January 1991.

187. L. Crane, Conformal field theory, spin geometry, and quantum gravity, *Phys. Lett.* **B259**, 243 (1991).

188. N. Dadhich, S. Koshti and A. Kshirsagar. On constraints of pure connection formulation of General Relativity for non-zero cosmological constant. *Class. Quan. Grav.* **8**:L61-L64, March 1991.

189. B. P. Dolan. The extension of chiral gravity to SL(2,C). In *Proceedings of the 1990 Banff Summer School on gravitation*, ed. by R. Mann (World Scientific, Singapore 1991)

190. R. Floreanini and R. Percacci. GL(3) invariant gravity without metric. *Class. Quan. Grav.***8**(2):273-78, February 1991.

191. G. Fodor and Z. Perjes. Ashtekar variables without hypersurfaces. *Proc. of Fifth Sem. Quantum Gravity, Moscow* (Singapore: World Scientific 1991) 183–7

192. H. Fort and R. Gambini. Lattice QED with light fermions in the P representation. IFFI preprint, 90-08. *Phys. Rev.* **D44**:1257-1262, 1991.

193. T. Fukuyama and K. Kamimura. Schwarzschild solution in Ashtekar formalism. *Mod. Phys. Lett.* **A6** (1991) 1437–42

194. R. Gambini. Loop space representation of quantum general relativity and the group of loops. *Phys. Lett.* **B255**:180-88, February 1991.

195. J.N. Goldberg. Self-dual Maxwell field on a null cone. *Gen. Rel. Grav.* **23** (December 1991) 1403–1413

196. J.N. Goldberg, E.T. Newman, and C. Rovelli. On Hamiltonian systems with first class constraints. *J. Math. Phys.* **32**(10) (1991) 2739–43

197. J. Goldberg, D.C. Robinson and C. Soteriou. Null surface canonical formalism. In *Gravitation and Modern Cosmology*, ed. Zichichi (Plenum Press, New York, 1991)

198. J. Goldberg, D.C.Robinson and C. Soteriou. A canonical formalism with a self-dual Maxwell field on a null surface. In *9th Italian Conference on General Relativity and Gravitational Physics (P.G. Bergmann Festschrift)*, ed. R. Cianci et al (World Scientific, Singapore 1991)

199. G. Harnett. Metrics and dual operators. *J. Math. Phys.* **32** (1991) 84-91. Florida Atlantic University preprint, 1991.

200. G.T. Horowitz. Topology change in classical and quantum gravity. *Class. Quan. Grav.* **8**:587-601, April 1991.

201. V. Husain. Topological quantum mechanics. *Phys. Rev.* **D43**:1803-07, March 1991.

202. H. Ikemori. Introduction to two form gravity and Ashtekar formalism. YITP-K-922 preprint (March 1991). *Tokyo Quantum Gravity*:7-88, 1991.

203. C. J. Isham. Loop Algebras and Canonical Quantum Gravity. To appear in Contemporary Mathematics,edited by M. Gotay, V. Moncrief and J. Marsden (American Mathematical Society, Providence, 1991).

204. K. Kamimura, S. Makita and T. Fukuyama . Spherically symmetric vacuum solution in Ashtekar's formulation of gravity. *Mod. Phys. Lett.* **A6** (30. Oct. 1991) 3047–53

205. C. Kozameh, W. Lamberti, and E.T. Newman Holonomy and the Einstein equations, *Appl. Phys.* **206**, 193-220 (1991).

206. C. Kozameh and E.T. Newman. The O(3,1) Yang-mills equations and the Einstein equations. *Gen. Rel. Grav.* **23**:87-98, January 1991.

207. H. C. Lee and Z. Y. Zhu. Quantum holonomy and link invariants. *Phys. Rev.***D44**(4):R942-45, 15 August 1991.

208. R. Loll. A new quantum representation for canonical gravity and SU(2) Yang-Mills theory. *Nucl. Phys.* **B350** (1991) 831–60

209. Y. Makeenko, Loop equations in matrix models and in 2–D quantum gravity, *Mod. Phys. Lett.* **A6**:1901 (1991).

210. E. Mielke, F. Hehl. Comment on "General relativity without the metric". *Phys. Rev. Lett.* **67** (Sept. 1991) 1370

211. V. Moncrief and M. P. Ryan. Amplitude-real-phase exact solutions for quantum mixmaster universes. *Phys. Rev.***D44**, (1991), 2375.

212. C. Nayak. The loop space representation of 2+1 quantum gravity: physical observables,variational principles, and the issue of time. *Gen. Rel. Grav.* **23**:661-70, June 1991.

213. C. Nayak. Einstein-Maxwell theory in 2+1 dimensions. *Gen. Rel. Grav.***23**:981-90, September 1991.

214. H. Nicolai. The canonical structure of maximally extended supergravity in three dimensions. *Nucl. Phys.* **B353** (April 1991) 493

215. P. Peldán. Legendre transforms in Ashtekar's theory of gravity. *Class. Quan. Grav.* **8** (Oct. 1991) 1765–83

216. P. Peldán. Non-uniqueness of the ADM Hamiltonian for gravity. *Class. Quan. Grav.* **8** (Nov. 1991) L223–7

217. C. Rovelli, "Knots and Physics", *Encyclopaedia Britannica*, 1991 Yearbook of Science and Technology, feature article.

218. C. Rovelli. Ashtekar's formulation of general relativity and loop-space non-perturbative quantum gravity : a report. *Class. Quan. Grav.***8**(9): 1613-1675, September 1991.

219. Carlo Rovelli. Holonomies and loop representation in quantum gravity. In *The Newman Festschrift*, ed. by A. Janis and J. Porter. (Birkhäuser, Boston 1991)

220. Joseph Samuel. Self-duality in Classical Gravity. In *The Newman Festschrift*, ed. by A. Janis and J. Porter. (Birkhäuser, Boston 1991)

221. Lee Smolin. Nonperturbative quantum gravity via the loop representation. In *Conceptual Problems of Quantum Gravity*, eds. A. Ashtekar and J. Stachel (Birkhäuser, Boston, 1991)

222. G. t'Hooft. A chiral alternative to the vierbein field in general relativity. *Nucl. Phys.* **B357**:211-221, 1991.

223. C. G. Torre. A deformation theory of self-dual Einstein spaces. in *Mathematical aspects of classical field theory.* Proceedings of the AMS-IMS-SIAM Joint Summer Research Conference held at the University ofWashington, Seattle, Washington, July 2026, 1991. Edited by Mark J. Gotay, Jerrod E. Marsden [Jerrold Eldon Marsden] and Vincent Moncrief. Contemporary Mathematics, 132, p 611. SU-GP-91/8-7, Syracuse University preprint, 1991.

224. S. Uehara. A note on gravitational and SU(2) instantons with Ashtekar variables. *Class. Quan. Grav.* **8**:L229–34 (Nov. 1991)

225. M. Varadarajan. Non-singular degenerate negative energy solution to the Ashtekar equations. *Class. Quan. Grav.* **8** (Nov. 1991) L235–40

226. K. Yamagishi and G.F. Chapline. Induced 4-d self-dual quantum gravity: $\hat{W}_\infty$ algebraic approach. *Class. Quan. Grav.***8**(3):427-46, March 1991.

227. J. Zegwaard, Gravitons in loop quantum gravity, *Nucl. Phys.* **B378**:288 (1992).

228. J. Zegwaard. Representations of quantum general relativity using Ashtekar's variables. *Class. Quan. Grav.***8** (July 1991) 1327–37

1992

229. A. Ashtekar. Loops, gauge fields and gravity. In *Proceedings of the VIth Marcel Grossmann meeting on general relativity*, eds. H. Sato and T. Nakamura (World Scientific, 1992), and in *Proceedings of the VIIIth Canadian conference on general relativity and gravitation*, edited by G. Kunstater et al (World Scientific, Singapore 1992)

230. A. Ashtekar and C. Isham. Representations of the holonomy algebras of gravity and non-abelian gauge theories. *Class. Quan. Grav.* **9** (June 1992) 1433–85

231. A. Ashtekar and C. Isham. Inequivalent observable algebras: a new ambiguity in field quantisation. *Phys. Lett.* **B274** (1992) 393–398

232. A. Ashtekar and J.D. Romano. Spatial infinity as a boundary of space-time. *Class. Quan. Grav.* **9** (April 1992) 1069–100

233. A. Ashtekar and C. Rovelli. Connections, loops and quantum general relativity. *Class. Quan. Grav.* **9** suppl. (1992) S3–12

234. A. Ashtekar and C. Rovelli. A loop representation for the quantum Maxwell field. *Class. Quan. Grav.* **9** (May 1992) 1121–50

235. A. Ashtekar, C. Rovelli and L. Smolin. Self duality and quantization. *J. Geom. Phys.* **8** (1992) 7–27

236. A. Ashtekar, C. Rovelli and L. Smolin. Weaving a classical geometry with quantum threads. *Phys. Rev. Lett.* **69** (1992) 237–40

237. J.C. Baez. Link invariants of finite type and perturbation theory. Lett. Math. Phys **26** (1992) 43–51.

238. I. Bengtsson and O. Boström. Infinitely many cosmological constants. *Class. Quan. Grav.* **9** (April 1992) L47–51

239. I. Bengtsson and P. Peldan. Another 'cosmological' constant. *Int. J. Mod. Phys.* **A7** (10 March 1992) 1287–308

240. O. Boström. Degeneracy in loop variables; some further results. *Class. Quan. Grav.* **9** (Aug. 1992) L83–86

241. B. Brügmann, R. Gambini and J. Pullin. Knot invariants as nondegenerate quantum geometries. *Phys. Rev. Lett.* **68** (27 Jan. 1992) 431–4

242. B. Brügmann, R. Gambini and J. Pullin. Knot invariants as nondegenerate states of four-dimensional quantum gravity. In *Proceedings of the Twentieth International conference on Differential Geometric Methods in Theoretical Physics, Baruch College, City University of New York,1-7 June 1991*, S. Catto, A. Rocha eds. (World Scientific, Singapore 1992)

243. B. Brügmann, R. Gambini and J. Pullin. Jones polynomials for intersecting knots as physical states of quantum gravity. *Nucl. Phys.* **B385** (Oct. 1992) 587–603

244. R. Capovilla. Nonminimally coupled scalar field and Ashtekar variables. *Phys. Rev.* **D46**:1450 (Aug. 1992)

245. R. Capovilla. Generally covariant gauge theories. UMDGR 90-253 Preprint, May 1990, *Nucl. Phys.* **B373**:233-246, (1992).

246. R. Capovilla and T. Jacobson. Remarks on pure spin connection formulation of gravity. Maryland preprint UMDGR-91-134, *Mod. Phys. Lett* **A7**:1871-1877, (1992).

247. L. N. Chang and C. P. Soo. Ashtekar's Variables and the Topological Phase of Quantum Gravity. In *Proceedings of the Twentieth International conference on Differential Geometric Methods in Theoretical Physics, Baruch College, City University of New York,1-7 June 1991*, S. Catto, A. Rocha eds. (World Scientific, Singapore 1992)

248. L. N. Chang and C. P. Soo. BRST cohomology and invariants of four-dimensional gravity in Ashtekar's variables. *Phys. Rev.* **D46**:4257–62 (Nov. 1992)

249. S. Carlip. (2+1)-dimensional Chern-Simons gravity as a Dirac square root. *Phys. Rev.* **D45** (1992) 3584–90

250. Y.M. Cho, K.S. Soh, J.H. Yoon and Q.H. Park. Gravitation as gauge theory of diffeomorphism group. *Phys. Lett.* **B286**:251-255, 1992.

251. R. Dijkgraaf, H. Verlinde and E. Verlinde, Loop Equations And Virasoro Constraints In Nonperturbative 2-D Quantum Gravity, *Nucl. Phys.* **B348**, 435 (1991).

252. G. Esposito. Mathematical structures of space-time. Cambridge preprint DAMTP-R-gols, *Fortsch. Phys.* **40** (1992) 1-30.

253. F. Fucito and M. Martellini, Loop Equations And Kdv Hierarchy In 2-D Quantum Gravity, Int. J. Mod. Phys. *Int. J. Mod. Phys.* **A7**, 2285 (1992).

254. G. Fülöp. Transformations and BRST-charges in 2+1 dimensional gravitation. gr-qc/9209003, *Mod. Phys. Lett.* **A7**:3495–3502 (1992)

255. T. Fukuyama. Exact Solutions in Ashtekar Formalism. In *Proceedings of the VIth Marcel Grossmann meeting on general relativity*, eds. H. Sato and T. Nakamura (World Scientific, 1992)

256. T. Fukuyama, K. Kamimura and S. Makita. Metric from non-metric action of gravity. *Int. J. Mod. Phys.* **D1**:363–70 (1992)

257. A. Giannopoulos and V. Daftardar. The direct evaluation of the Ashtekar variables for any given metric using the algebraic computing system STENSOR. *Class. Quan. Grav.* **9**:1813–22 (July 1992)

258. J. Goldberg. Quantized self-dual Maxwell field on a null surface. *J. Geom. Phys.* **8**:163–172 (1992)

259. J. Goldberg. Ashtekar variables on null surfaces. In *Proceedings of the VIth Marcel Grossmann meeting on general relativity*, eds. H. Sato and T. Nakamura (World Scientific, 1992)

260. J.N. Goldberg, J. Lewandowski, and C. Stornaiolo. Degeneracy in loop variables. *Commun. Math. Phys.* **148**:377–402 (1992)

261. J.N. Goldberg, D.C. Robinson and C. Soteriou. Null hypersurfaces and new variables. *Class. Quan. Grav.* **9** (May 1992) 1309–28

262. J. Horgan. Gravity quantized? *Scientific American* (Sept. 1992) 18–20

263. G. Horowitz. Ashtekar's approach to quantum gravity. University of California preprint, 1991. in Strings and Symmetries 1991, proceedings of a conference held in Stony Brook, May 21-25, 1991 (World Scientific 1992) (602 pages) (editors N. Berkovits, H. Itoyama, K. Schoutens, A. Sevrin, W. Siegel, P. van Nieuwenhuizen and J. Yamron).

264. V. Husain. 2+1 gravity without dynamics. *Class. Quan. Grav.* **9** (March 1992) L33–36

265. T. Jacobson and J.D. Romano. Degenerate Extensions of general relativity. *Class. Quan. Grav.* **9** (Sept. 1992) L119–24

266. A. Kheyfets and W.A. Miller. E. Cartan moment of rotation in Ashtekar's self-dual representation of gravitation. *J. Math. Phys.* **33** (June 1992) 2242–2248.

267. C. Kim, T. Shimizu and K. Yushida. 2+1 gravity with spinor field. *Class. Quan. Grav.* **9** (1992) 1211-16

268. H. Kodama. Quantum gravity by the complex canonical formulation. gr-qc/9211022, *Int. J. Mod. Phys.* **D1** (1992) 439

269. S. Koshti. Massless Einstein Klein-Gordon equations in the spin connection formulation. *Class. Quan. Grav.* **9** (1992) 1937–42

270. J. Lewandowski. Reduced holonomy group and Einstein's equations with a cosmological constant. *Class. Quan. Grav.* **9** (Oct. 1992) L147–51

271. R. Loll. Independent SU(2)-loop variables and the reduced configuration space of SU(2)-lattice gauge theory. *Nucl. Phys.* **B368** (1992) 121–42

272. R. Loll. Loop approaches to gauge field theory. Syracuse SU-GP-92/6-2, in *Memorial Volume for M.K. Polivanov, Teor. Mat. Fiz.* **91** (1992)

273. A. Magnon. Ashtekar variables and unification of gravitational and electromagnetic interactions. *Class. Quan. Grav.* **9** suppl. (1992) S169–81

274. J. Maluf. Self-dual connections, torsion and Ashtekar's variables. *J. Math. Phys.* **33** (Aug. 1992) 2849–54

275. J.W. Maluf. Symmetry properties of Ashtekar's formulation of canonical gravity. Nuovo Cimento **107** (July 1992) 755–

276. N. Manojlović and A. Miković. Gauge fixing and independent canonical variables in the Ashtekar formalism of general relativity. *Nucl. Phys.* **B382**:148–70 (June 1992)

277. N. Manojlović and A. Miković. Ashtekar Formulation of (2+1)-gravity on a torus. *Nucl. Phys.* **B385** (July 1992) 571–586

278. E.W. Mielke. Ashtekar's complex variables in general relativity and its teleparallelism equivalent. *Ann. Phys. (N.Y.)* **219** (1992) 78–108

279. E.T. Newman and C. Rovelli. Generalized lines of force as the gauge-invariant degrees of freedom for general relativity and Yang-Mills theory. *Phys. Rev. Lett.* **69** (1992) 1300–3

280. P. Peldán. Connection formulation of (2+1)-dimensional Einstein gravity and topologically massive gravity. *Class. Quan. Grav.* **9** (Sept. 1992) 2079–92

281. L. Smolin. The $\mathrm{G_{Newton}} \rightarrow 0$ limit of Euclidean quantum gravity. *Class. Quan. Grav.* **9** (April 1992) 883–93

282. L. Smolin. Recent developments in nonperturbative quantum gravity. In *Proceedings of the XXII Gift International Seminar on Theoretical Physics, Quantum Gravity and Cosmology, June 1991, Catalonia, Spain* (World Scientific, Singapore 1992)

283. V. Soloviev. Surface terms in Poincare algebra in Ashtekar's formalism. In *Proceedings of the VIth Marcel Grossmann meeting on general relativity*, eds. H. Sato and T. Nakamura (World Scientific, 1992)

284. Vladimir Soloviev. How canonical are Ashtekar's variables? *Phys. Lett.* **B292**:30, 1992.

285. R.S. Tate. Polynomial constraints for general relativity using real geometrodynamical variables. *Class. Quan. Grav.* **9** (Jan. 1992) 101–19

286. C.G. Torre. Covariant phase space formulation of parametrized field theory. *J. Math. Phys.* **33** (Nov. 1992) 3802–12

287. R.P. Wallner. Ashtekar's variables reexamined. *Phys. Rev.* **D46** (Nov. 1992) 4263–4285

288. J. Zegwaard. Gravitons in loop quantum gravity. *Nucl. Phys.* **B378** (July 1992) 288–308

1993

289. A. Ashtekar. Recent developments in classical and quantum theories of connections including general relativity. In *Advances in Gravitation and Cosmology*, eds. B. Iyer, A. Prasanna, R. Varma and C. Vishveshwara (Wiley Eastern, New Delhi 1993)

290. A. Ashtekar, lecture notes by R.S. Tate. Physics in loop space. In *Quantum gravity, gravitational radiation and large scale structure in the universe*, eds. B.R. Iyer, S.V. Dhurandhar and K. Babu Joseph (1993)

291. A. Ashtekar and J. Lewandowski. Completeness of Wilson loop functionals on the moduli space of $SL(2,C)$ and $SU(1,1)$-connections. gr-qc/9304044, *Class. Quan. Grav.* **10** (June 1993) L69–74

292. A. Ashtekar, R.S. Tate and C. Uggla. Minisuperspaces: observables, quantization and singularities. Int. J. Mod. Phys. **D2**, 15–50 (1993).

293. A. Ashtekar, R.S. Tate and C. Uggla. Minisuperspaces: symmetries and quantization. In *Misner Festschrift*, edited by B.L. Hu, M. Ryan and C.V. Vishveshwara (Cambridge University Press, 1993)

294. J.C. Baez. Quantum gravity and the algebra of tangles. *Class. Quan. Grav.* **10** (April 1993) 673–94

295. I. Bengtsson. Some observations on degenerate metrics. *Gen. Rel. Grav.* **25** (Jan. 1993) 101–12

296. I. Bengtsson. Strange Reality: Ashtekar's variables with Variations. Theor. Math. Phys. **95** (May 1993) 511

297. I. Bengtsson. Neighbors of Einstein's equations — some new results. Göteborg preprint ITP92-35 *Class. Quan. Grav.* **10**:1791-1802, 1993.

298. J. Birman. New points of view in knot theory. *Bull. AMS***28** (April 1993) 253–287

299. B. Brügmann, Bibliography of publications related to classical and quantum gravity in terms of the Ashtekar variables, arXiv:gr-qc/9303015.

300. B. Brügmann, R. Gambini and J. Pullin. How the Jones polynomial gives rise to physical states of quantum general relativity. *Gen. Rel. Grav.* **25** (Jan. 1993) 1–6

301. B. Brügmann and J. Pullin. On the constraints of quantum gravity in the loop representation. *Nucl. Phys.* **B390** (Feb. 1993) 399–438

302. R. Capovilla, J. Dell and T. Jacobson. The initial value problem in light of Ashtekar's variables. In *Directions in General Relativity, vol. 2*, eds. B. L. Hu and T. A. Jacobson (Cambridge University Press, 1993), pp. 66-77. gr-qc/9302020

303. R. Capovilla and Jerzy Plebański. Some exact solutions of the Einstein field equations in terms of the self-dual spin connection. *J. Math. Phys.* **34** (Jan. 1993) 130–138

304. S. Carlip. Six ways to quantize (2+1)-dimensional gravity. gr-qc/9305020, *Canadian Gen. Rel.* (1993), 215

305. C. Di Bartolo, R. Gambini and J. Griego. The Extended Loop Group: An Infinite Dimensional Manifold Associated With the Loop Space.IFFI/93.01, gr-qc/9303010 *Commun. Math. Phys.* **158** (Nov. 1993) 217–40

306. R. Gambini, The Loop representation in gauge theories and quantum gravity, In *Proceedings at the 1993 Workshop on Particles and Fields*, R. Huerta, M.A. Perez and L.F. Urrutia, eds. (World Scientific, Singapore, 1994) p.162. arXiv:hep-th/9403006.

307. R. Gambini and J. Pullin. Quantum Einstein-Maxwell fields: a unified viewpoint from the loop representation. hep-th/9210110, *Phys. Rev.* **D47** (June 1993) R5214–8

308. D. Giulini, Ashtekar variables in classical general relativity, in "Canonical gravity: from classical to quantum" Eds J Ehlers and H Friedrich, Springer (1994). arXiv:gr-qc/9312032.

309. D.E. Grant. On self-dual gravity. gr-qc/9301014, *Phys. Rev.* **D48** (Sept. 1993) 2606–12

310. V. Husain. Ashtekar variables, self-dual metrics and W_∞. *Class. Quan. Grav.* **10**:543–50 (March 1993)

311. V. Husain. General covariance, loops, and matter. gr-qc/9304010, *Phys. Rev.* **D47** (June 1993) 5394–9

312. V. Husain. Faraday Lines and Observables for the Einstein-Maxwell Theory. *Class. Quan. Grav.* **10** (1993) L233–L237

313. G. Immirzi. The reality conditions for the new canonical variables of general relativity. *Class. Quan. Grav.* **10** (Nov. 1993) 2347–52

314. T. Jacobson and J.D. Romano. The Spin Holonomy Group in General Relativity. *Commun. Math. Phys.* **155** (July 1993) 261–76

315. C. Kiefer. Topology, decoherence, and semiclassical gravity. gr-qc/9306016, *Phys. Rev.* **D47** (June 1993) 5413–21

316. K. Kuchar. Canonical quantum gravity. gr-qc/9304012. In *General Relativity and Cosmology 1992*, R.J Gleiser, C Kozameh, O.M. Moreshi eds. (IOP Publishing, 1993).

317. H. Kunitomo and T. Sano. The Ashtekar formulation for canonical $N = 2$ supergravity. Prog. Theor. Phys. suppl. (1993) 31

318. K. Kamimura and T. Fukuyama. Massive analogue of Ashtekar-CDJ action. Vistas in astronomy **37** (1993) 625–

319. S. Lau. Canonical variables and quasilocal energy in general relativity. gr-qc/9307026, *Class. Quan. Grav.* **10** (Nov. 1993) 2379–99

320. H.Y. Lee, A. Nakamichi and T. Ueno. Topological two-form gravity in four dimensions. *Phys. Rev.* **D47** (Feb. 1993) 1563–68

321. J. Lewandowski. Group of loops, holonomy maps, path bundle and path connection. *Class. Quan. Grav.* **10** (1993) 879–904

322. R. Loll. Lattice gauge theory in terms of independent Wilson loops. In *Lattice 92*, eds J. Smit and P. van Baal, *Nucl. Phys.* **B** (Proc. Suppl.) **30** (March 1993)

323. R. Loll. Loop variable inequalities in gravity and gauge theory. *Class. Quan. Grav.* **10** (Aug. 1993) 1471–76

324. R. Loll. Yang-Mills theory without Mandelstam constraints. *Nucl. Phys.* **B400** (1993) 126–44

325. J. Louko. Holomorphic quantum mechanics with a quadratic Hamiltonian constraint. gr-qc/9305003, *Phys. Rev.* **D48** (Sept. 1993) 2708–27

326. J. Maluf. Degenerate triads and reality conditions in canonical gravity. *Class. Quan. Grav.* **10** (April 1993) 805–9

327. N. Manojlović and G.A. Mena Marugán. Nonperturbative canonical quantization of nimisuperspace models: Bianchi types I and II. gr-qc/9304041, *Phys. Rev.* **D48** (Oct. 1993) 3704–19

328. N. Manojlović and A. Miković. Canonical analysis of Bianchi models in the Ashtekar formulation. *Class. Quan. Grav.* **10** (March 1993) 559–74

329. D.M. Marolf. Loop representations for $2 + 1$ gravity on a torus. *Class. Quan. Grav.* **10** (Dec. 1993) 2625–47

330. D. Marolf. An illustration of 2+1 gravity loop transform troubles. gr-qc/9305015, *Canadian Gen. Rel.* (1993) 256.

331. H.-J. Matschull. Solutions to the Wheeler-DeWitt constraint of canonical gravity coupled to scalar matter fields. gr-qc/9305025, *Class. Quan. Grav.* **10**:L149-L154, (1993).

332. H. Nicolai and H.J. Matschull. Aspects of Canonical Gravity and Supergravity. *J. Geom. Phys.* **11**:15-62, (1993).

333. O. Obregón, J. Pullin, M.P. Ryan. Bianchi cosmologies: New variables and a hidden supersymmetry. gr-qc/9308001, *Phys. Rev.* **D48** (Dec. 1993) 5642–47

334. Peter Peldán. Unification of gravity and Yang-Mills theory in 2+1 dimensions. *Nucl. Phys.* **B395** (1993) 239–62

335. A. Rendall. Comment on a paper of Ashtekar and Isham. *Class. Quan. Grav.* **10** (March 1993) 605–8

336. A. Rendall. Unique determination of an inner-product by adjointness relations in the algebra of quantum observables. *Class. Quan. Grav.* **10** (Nov. 1993) 2261–69

337. J. Romano. Geometrodynamics vs. connection dynamics. gr-qc/9303032, *Gen. Rel. Grav.* **25** (Aug. 1993) 759–854

338. J. Romano. Constraint algebra of degenerate relativity. gr-qc/9306034, *Phys. Rev.* **D48** (Dec. 1993) 5676–83

339. C. Rovelli. Area is length of Ashtekar's triad field. *Phys. Rev.* **D47** (Feb. 1993) 1703–5

340. C. Rovelli. Basis of the Ponzano-Regge-Turaev-Viro-Ooguri quantum-gravity model is the loop representation basis. *Phys. Rev.* **D48** (Sept. 1993) 2702–07

341. C. Rovelli. A generally covariant quantum field theory and a prediction on quantum measurements of geometry. *Nucl. Phys.* **B405** (Sept. 1993) 797–815

342. T. Sano and J. Shiraishi. The non-perturbative canonical quantization of the $N = 1$ supergravity. *Nucl. Phys.* **B410** (Dec. 1993) 423–47

343. L. Smolin. What can we learn from the study of non-perturbative quantum general relativity? gr-qc/9211019, in *General Relativity and Cosmology 1992*, R.J Gleiser, C Kozameh, O.M. Moreshi eds. (IOP Publishing, 1993).

344. L. Smolin. Time, measurement and information loss in quantum cosmology. in *Directions in General Relativity, Proceedings, Simposium, College Park, USA, May 1993* B.L. Hu and T. Jacobson (eds),Cambridge U. Press, 1993. gr-qc/9301016,

345. R.S. Tate. Constrained systems and quantization. In *Quantum gravity, gravitational radiation and large scale structure in the universe*, eds. B.R. Iyer, S.V. Dhurandhar and K. Babu Joseph (1993)

346. T. Thiemann. On the solution of the initial value constraints for general relativity coupled to matter in terms of Ashtekar's variables. *Class. Quan. Grav.* **10** (Sept. 1993) 1907–21

347. T. Thiemann and H.A. Kastrup. Canonical quantization of spherically symmetric gravity in Ashtekar's self-dual representation. *Nucl. Phys.* **B399** (June 1993) 211–58

348. D.A. Ugon, R. Gambini and P. Mora. Link invariants for intersecting loops. *Phys. Lett.* **B305** (May 1993) 214–22

349. J. Zegwaard. Physical interpretation of the loop representation for non-perturbative quantum gravity. *Class. Quan. Grav.* **10** suppl. (Dec. 1993) S273–6

350. J. Zegwaard. The weaving of curved geometries. *Phys. Lett.* **B300** (Feb. 1993) 217–222

1994

351. D. Armand-Ugon, R. Gambini, J. Griego, and L. Setaro. Classical loop actions of gauge theories, hep-th/9307179, *Phys. Rev.* **D50** (1994) 5352

352. A. Ashtekar. Overview and outlook. CGPG-94/1-1, gr-qc/9403038, in J Ehlers and H. Friedrich, eds, *Canonical Gravity: From Classical to Quantum.* Springer-Verlag Berlin (1994).

353. A. Ashtekar and J. Lee. Weak field limit of General Relativity in terms of new variables: A Hamiltonian framework. CGPG-94/8-3, *Int. J. Mod. Phys.* **D3**:675-694, (1994).

354. A. Ashtekar and J. Lewandowski. Representation theory of analytic holonomy C^*-algebras. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994. gr-qc/9311010.

355. A. Ashtekar and R. Loll. New loop representations for $2+1$ gravity. CGPG-94/5-1, gr-qc/9405031, *Class. Quan. Grav.* **11**:2417-2434, 1994

356. A. Ashtekar, D. Marolf and J. Mourão. Integration on the space of connections modulo gauge transformations. *Proc. Lanczos International Centenary Conference.* J. Brown et al (eds), SIAM, Philadelphia, 1994. CGPG-94/3-4, gr-qc/9403042.

357. A. Ashtekar and R.S. Tate. An algebraic extension of Dirac quantization: Examples. CGPG-94/6-1, gr-qc/9405073. *J. Math. Phys.* **35** (1994), 6434

358. A. Ashtekar and M. Varadarajan. A striking property of the gravitational Hamiltonian. CGPG-94/8-3, gr-qc/9406040, *Phys. Rev.* **D52** (1994), 4944

359. J. Baez. Generalized Measures in Gauge Theory. *Lett. Math. Phys.* **31** (1994) 213–223

360. J.C. Baez. Strings, loops, knots, and gauge fields. in *Knots and Quantum Gravity, Proceedings, Workshop, Riverside, 1993.* J.C. Baez (ed), Clarendon, Oxford U.K. (1994). hep-th/9309067.

361. J.C. Baez. Diffeomorphism-invariant generalized measures on the space of connections modulo gauge transformations. in *The Proceedings of the Conference on Quantum Topology*, L. Crane and D. Yetter (eds) World Scientific, Singapore, 1994. hep-th/9305045.

362. J.F. Barbero G. Real-polynomial formulation of general relativity in terms of connections. *Phys. Rev.* **D49** (June 1994) 6935–38

363. J.F. Barbero. General Relativity as a Theory of 2 Connections. CGPG-93/9-5, gr-qc/9310009, *Int. J. Mod. Phys.* **D3** (1994) 379–392

364. J.F. Barbero G. and M. Varadarajan. The phase space of $(2+1)$-dimensional gravity in the Ashtekar formulation. *Nucl. Phys.* **B415** (Mar. 1994) 515–530, gr-qc/9307006.

365. C. Di Bartolo, R. Gambini, J. Griego and J. Pullin. Extended loops: A new arena for nonperturbative quantum gravity. *Phys. Rev. Lett.* **72** (June 1994) 3638–41

366. Y. Bi and J. Gegenberg Loop variables in topological gravity. gr-qc/9307031, *Class. Quan. Grav.* **11** (Apr. 1994) 883–96

367. R. Borissov. Weave states for plane gravitational waves. *Phys. Rev.* **D49** (Jan. 1994) 923–29

368. O. Böstrom. Loop variables and degeneracy. in *Proceedings of the VII J.A. Swieca Summer School on Particles and Fields, Sao Paolo, Brazil, 1993*, World Scientific (1994).

369. B. Brügmann. Loop Representations. MPI-Ph/93-94, gr-qc/9312001.In J Ehlers and H. Friedrich, eds, *Canonical Gravity: From Classical to Quantum.* Springer-Verlag Berlin (1994).

370. R. Capovilla and J. Guven. Super-Minisuperspace and New Variables. CIEA-GR-9401, gr-qc/9402025, *Class. Quan. Grav.* **11** (1994) 1961–70

371. R. Capovilla and O. Obregon No quantum Superminisuperspace with $\Lambda \neq 0$. *Phys. Rev.* **D49** (1994), 6562

372. S. Carlip. Geometrical structures and loop variables in $2+1$)-dimensional gravity. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994. UCD-93-30, gr-qc/9309020.

373. S.M. Carroll and G.B. Field. Consequences of propogating torsion in connection-dynamic theories of gravity. *Phys. Rev.* **D50**:3867-3873, 1994. gr-qc/9403058.

374. S. Chakraborty and P. Peldán. Towards a unification of gravity and Yang-Mills theory. CGPG-94/1-3, gr-qc/9401028, *Phys. Rev. Lett.* **73** (1994) 1195.

375. S. Chakraborty and P. Peldán. Gravity and Yang-Mills theory: two faces of the same theory? CGPG-94/2-2, gr-qc/9403002, *Int. J. of Mod. Phys.*D3 (1994) 695.

376. L.N. Chang and C. Soo. Superspace Dynamics and perturbations around 'emptiness'. *Int. J. Mod. Phys.* **D3**:529 (1994).

377. L. Crane. Topological field theory as the key to quantum gravity. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994.

378. G. Esposito and H.A. Morales-Técotl. Self Dual Action for Fermionic Fields and Gravitation. gr-qc/9506073, *Nuov. Cimiento* **109B**:973-982 (1994).

379. G. Esposito, H.A. Morales-Técotl and G. Pollifrone. Boundary Terms for Massless Fermionic Fields. gr-qc/9506075, *Found. Phys. Lett.* **7**:303-308 (1994).

380. S. Frittelli, S. Koshti, E.T. Newman and C. Rovelli. Classical and quantum dynamics of the Faraday lines of force. *Phys. Rev.* **D49** (June 1994) 6883–91

381. G. Fülöp. About a super-Ashtekar-Renteln ansatz. gr-qc/9305001, *Class. Quan. Grav.* **11** (Jan. 1994) 1–10

382. R. Gambini and J. Pullin. The Gauss linking number in quantum gravity. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994.

383. D. Giulini. Ashtekar variables in classical general relativity. THEP-93/31, gr-qc/9312032. In J Ehlers and H. Friedrich, eds, *Canonical Gravity: From Classical to Quantum.* Springer-Verlag Berlin (1994).

384. J.N. Goldberg and D.C. Robinson. Linearized constraints in the connection representation: Hamilton-Jacobi solution. *Phys. Rev.* **D50**:6338-6343, 1994. gr-qc/9405030.

385. S. Hacyan. Hamiltonian Formulation of General Relativity in terms of Dirac Spinors. *Gen. Rel. Grav.* **26** (Jan. 1994) 85–96

386. J. Hallin. Representations of the SU(N) T-Algebra and the Loop Representation in 1+1 Dimensions. *Class. Quan. Grav.* **11** 1615–1629

387. H.-L. Hu. $W_{1+\infty}$, KP and loop representation of four dimensional gravity. *Phys. Lett.* **B324** (Apr. 1994) 293–98

388. V. Husain. Self-dual gravity and the chiral model. *Phys. Rev. Lett.* **72** (Feb. 1994) 800–03

389. V. Husain. Self-dual gravity as a two-dimensional theory and conservation laws. *Class. Quan. Grav.* **11** (Apr. 1994) 927–38

390. V. Husain. Observables for spacetimes with two Killing field symmetries. Alberta-Thy-55.93, gr-qc/9402019, *Phys. Rev.* **D50**, (1994), 6207

391. G. Immirzi. Regge Calculus and Ashtekar Variables. *Class. Quan. Grav.* **11** (1994) 1971–79 gr-qc/9402004

392. J. Iwasaki and C. Rovelli. Gravitons from Loops – Nonperturbative Loop-Space Quantum-Gravity Contains the Graviton-Physics Approximation. *Class. Quan. Grav.* **11** (1994) 1653–76

393. H.A. Kastrup and T. Thiemann. Spherically symmetric gravity as a completely integrable system. PITHA 93-35, gr-qc/9401032, *Nucl. Phys.* **B425**:665-685, (1994).

394. L.H. Kauffmann. Vassiliev invariants and the loop states in quantum gravity. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994. arXiv:gr-qc/9310035.

395. J. Lewandowski. Topological Measure and Graph-Differential Geometry on the Quotient Space of Connections. gr-qc/9406025, *Int. J. Mod. Phys.* **D3** (1994) 207–210

396. J. Lewandowski. Differential geometry for the space of connections modulo gauge transformations. In *the proceedings of Cornelius Lanczos International Centenary Conference.* J. Brown, et al (eds), SIAM Phyladelphya, 1994. gr-qc/9406026

397. R. Loll. The loop formulation of gauge theory and gravity. In *Knots and Quantum Gravity*, ed. J. Baez, Oxford U. Press, 1994.

398. R. Loll. Gauge theory and gravity in the loop formulation. CGPG-94/1-1. In J Ehlers and H. Friedrich, eds, *Canonical Gravity: From Classical to Quantum.* Springer-Verlag Berlin (1994).

399. J. Louko and D. Marolf. Solution space of 2+1 gravity on $\mathbf{R} \times T^2$ in Witten's connection formulation. gr-qc/9308018, *Class. Quan. Grav.* **11** (1994), 315

400. J. Mäkelä. Phase space coordinates and the Hamiltonian constraint of Regge calculus. *Phys. Rev.* **D49** (Mar. 1994) 2882–96

401. H.-J. Matschull. About loop states in supergravity. DESY-94-037, gr-qc/9403034, *Class. Quan. Grav.* **11**:2395-2410, (1994).

402. H.-J. Matschull and H. Nicolai. Canonical quantum supergravity in three dimensions. gr-qc/9306018, *Nucl. Phys.* **B411** (Jan. 1994) 609–46

403. G.A. Mena Marugán, Reality conditions for Lorentzian and Euclidean gravity in the Ashtekar formulation, *Int. J. Mod. Phys.* **D3**, 513-528 (1994) [gr-qc/9311020].

404. G.A. Mena Marugán. Reality conditions in non-perturbative quantum cosmology. *Class. Quan. Grav.* **11** (Mar. 1994) 589–608

405. G. Modanese. Wilson Loops in 4-Dimensional Quantum-Gravity. *Phys. Rev.* **D49** (1994) 6534–42

406. H.A. Morales-Técotl and C. Rovelli. Fermions in quantum gravity. *Phys. Rev. Lett.* **72** (June 1994) 3642–45

407. O. Moritsch, M. Schweda, T. Sommer, L. Tataru and H. Zerrouki, BRST cohomology of Yang-Mills gauge fields in the presence of gravity in Ashtekar variables, arXiv:hep-th/9409081.

408. J.M. Nester, R.-S. Tung and Y.Z. Zhang. Ashtekar's new variables and positive energy. *Class. Quan. Grav.* **11** (Mar. 1994) 757–66

409. J.A. Nieto, O. Obregón and J. Socorro. The gauge theory of the de-Sitter group and Ashtekar formulation. IFUG-94-001, gr-qc/9402029, *Phys. Rev.* **D50** (1994), 3583

410. P. Peldán. Actions for gravity, with generalizations: a review. gr-qc/9305011, *Class. Quan. Grav.* **11** (May. 1994) 1087–1132

411. Peter Peldán. Ashtekar's variables for arbitrary gauge group. Göteborg ITP 92-17, *Phys. Rev.* **D46**, R2279.

412. P. Peldán. Real formulations of complex gravity and a complex formulation of real gravity. GCPG-94/4-6, gr-qc/9405002, *Nucl. Phys.* **B430**, (1994), 460

413. J. Pullin. Knot theory and quantum gravity: a primer. in *Fifth Mexican School of Particles and Fields.* J.L. Lucio and M. Vargas (eds), AIP Conference Proceedings 317, AIP Press (1994). hep-th/9301028.

414. A. Rendall. Adjointness relations as a criterion for choosing an inner product. MPA-AR-94-1, gr-qc/9403001. In J Ehlers and H. Friedrich, eds, *Canonical Gravity: From Classical to Quantum.* Springer-Verlag Berlin (1994).

415. C. Rovelli and L. Smolin. The physical Hamiltonian in nonperturbative quantum gravity. *Phys. Rev. Lett.* **72** (Jan. 1994) 446–49

416. D.C. Salisbury and L.C. Shepley. A connection approach to numerical relativity. *Class. Quan. Grav.* **11**:2789-2806, 1994. gr-qc/9403040.

417. P. Schaller, J. Strobl. Canonical quantization of two-dimensional gravity with torsion and the problem of time. *Class. Quan. Grav.* **11** (Feb. 1994) 331–46

418. L. Smolin Finite Diffeomorphism-Invariant Observables in Quantum Gravity. SU-GP-93/1-1, gr-qc/9302011, *Phys. Rev.* **D49** (1994) 4028–40

419. T. A. Schilling, Bibliography of publications related to classical and quantum gravity in terms of the Ashtekar variables, arXiv:gr-qc/9409031.

420. J. Tavares. Chen integrals, generalized loops and loop calculus. *Int. J. Mod. Phys.* **A9**:4511-4548, 1994.

421. T. Thiemann. Reduced Phase-Space Quantization of Spherically Symmetrical Einstein-Maxwell Theory Including a Cosmological Constant. *Int. J. Mod. Phys.* **D3** (1994) 293-298

1995

422. D. Armand-Ugon, R. Gambini and P. Mora. Intersecting braids and intersecting knot theory. *Journal of Knot theory and its ramifications* **4**:1, 1995. hep-th/9309136.

423. A. Ashtekar. Mathematical problems of non-perturbative quantum general relativity. Published in: *Gravitation and Quantization (Les Houches, Session LVIII, 1992.* Ed. B. Julia (Elsevier, Amsterdam, 1995)

424. A. Ashtekar. Recent Mathematical Developments in Quantum General Relativity. In *The Proceedings of PASCOS-94.* K.C. Wali (ed), World Scientific, 1995. gr-qc/9411055.

425. A. Ashtekar and J. Lewandowski. Differential geometry on the space of connections via graphs and projective limits. CGPG-94/12-4, hep-th/9412073, *J. Geom. Phys.* **17** (1995), 191

426. A. Ashtekar and J. Lewandowski. Projective techniques and functional integration. CGPG/94/10-6, gr-qc/9411046, *J. Math. Phys.* **36** (1995), 2170

427. A. Ashtekar, J. Lewandowski, D. Marolf, J. Mourão and T. Thiemann. Quantization of diffeomorphism invariant theories of connections with local degrees of freedom. gr-qc/9504018, *J. Math. Phys.* **36** (1995), 519

428. G. Au. The quest for quantum gravity. *Current Science*, **69**:499-518, 1995. gr-qc/9506001.

429. J.C. Baez. Link invariants, holonomy algebras and functional integration. *Jour. Funct. Analysis* **127**:108, 1995.

430. J. C. Baez, J. P. Muniain, and Dardo D. Piriz. Quantum gravity Hamiltonian for manifolds with boundary. gr-qc/9501016, *Phys. Rev.* **D52** (1995), 6840

431. J. F. Barbero G. Solving the constraints of general relativity.*Class. Quan. Grav.* **12**:L5-L10, 1995. CGPG-94/11-3, gr-qc/9411016.

432. J. F. Barbero G. Reality Conditions and Ashtekar Variables: a Different Perspective, *Phys. Rev.* **D51**:5498-5506, 1995. gr-qc/9410013.

433. J. F. Barbero G. Real Ashtekar Variables for Lorentzian Signature Space-times. *Phys. Rev.* **D51**:5507 -5510 (1995). gr-qc/9410014.

434. J. F. Barbero and M. Varadarajan. Homogeneous (2+1)-Dimensional Gravity in the Ashtekar Formulation, *Nucl. Phys.* **B456**:355-376, 1995. gr-qc/9507044.

435. C. Di Bartolo, R. Gambini, and J. Griego. Extended loop representation of quantum gravity, gr-qc/9406039, *Phys. Rev.* **D51** (Jan. 1995) 502

436. C. Di Bartolo, R. Gambini, J. Griego and J. Pullin. The space of states of quantum gravity in terms of loops and extended loops: some remarks. *J. Math. Phys.* **36**:6511, 1995. gr-qc/9503059.

437. P.A. Blaga, O. Moritsch and H. Zerrouki. Algebraic structure of gravity in Ashtekar's variables. TUW 94-15, hep-th/9409046, *Phys. Rev.* **D51** (Mar. 1995) 2792

438. B. Brügmann. On a geometric derivation of Witten's identity for Chern-Simons theory via loop deformations. *Int. J. Theor. Phys.* **34**:145, 1995. hep-th/9401055.

439. G. Esposito and C. Stornaiolo. Space-time covariant form of Ashtekar's constraints. *Nuovo Cim.* **110B**:1137-1152, 1995. gr-qc/9506008.

440. K. Ezawa. Combinatorial solutions to the Hamiltonian constraint in (2+1)-dimensional Ashtekar gravity. gr-qc/9506043, *Nucl. Phys.* **B459**:355-392 (1995).

441. T.J. Foxon. Spin networks, Turaev - Viro theory and the loop representation. *Class. Quan. Grav.* **12** (April 1995) 951

442. R. Gambini, A. Garat and J. Pullin. The constraint algebra of quantum gravity in the loop representation. CGPG-94/4-3, gr-qc/9404059, *Int. J. Mod. Phys.* **D4** (1995) 589

443. H. Garcia-Compean and T. Matos. Solutions in Self-dual Gravity constructed Via Chiral Equations. *Phys. Rev.* **D 52**:4425-4429, 1995. hep-th/9409135.

444. J.N. Goldberg and C. Soteriou. Canonical General Relativity on a null surface with coordinate and gauge fixing. *Class. Quan. Grav.* **12**:2779-2798, 1995. gr-qc/9504043.

445. G. Gonzalez and R. Tate. Classical analysis of Bianchi types I and II in Ashtekar variables. *Class. Quan. Grav.* **12**:1287-1304, 1995. gr-qc/9412015.

446. I. Grigentch and D.V. Vassilevich. Reduced phase space quantization of Ashtekar's gravity on de Sitter background. *Int. J. Mod. Phys.* **D4**:581-588, 1995. gr-qc/9405023.

447. V. Husain. The affine symmetry of self-dual gravity. *J. Math. Phys.* **36**:6897, 1995. hep-th/9410072.

448. R.A. d'Inverno and J.A. Vickers. 2+2 decomposition of Ashtekar variables. *Class. Quan. Grav.* **12** (Mar. 1995) 753

449. J. Iwasaki and C. Rovelli. Gravitons as embroidery on the weave. *Int. J. Mod. Phys***D1** (1995) 533

450. R. Loll. Independent loop invariants for 2 + 1 gravity. CGPG-94/7-1, gr-qc/9408007, *Class. Quan. Grav.* **12**:1655-1662, (1995).

451. R. Loll, Making quantum gravity calculable, *Acta Cosmologica* **21**:131 (1995) [arXiv:gr-qc/9511080].

452. R. Loll. Quantum Aspects of 2 + 1 Gravity. gr-qc/9503051, *J. Math. Phys.* **36**:6494-6509, (1995).

453. R. Loll. Non-perturbative solutions for lattice quantum gravity. gr-qc/9502006, *Nucl. Phys.* **B444**:614-640, (1995).

454. R. Loll. The volume operator in discretized quantum gravity. gr-qc/9506014, *Phys. Rev. Lett.* **75**:3048-3051, (1995).

455. R. Loll, J.M. Mourão and J.N. Tavares. Generalized coordinates on the phase space of Yang-Mills theory. CGPG-94/4-2, gr-qc/9404060, *Class. Quan. Grav.* **12**:1191-1198, (1995).

456. J. Louko. Chern-Simons functional and the no-boundary proposal in Bianchi IX quantum cosmology. *Phys. Rev.* **D51**:586-590, 1995. gr-qc/9408033.

457. S. Major and L. Smolin. Cosmological histories for the new variables. *Phys. Rev.* **D51**:5475 (1995) gr-qc/9402018

458. D. Marolf and J.M. Mourão. On the support of the Ashtekar-Lewandowski measure. CGPG-94/3-1, hep-th/ 9403112, *Comm. Math. Phys.***170** (1995), 583

459. H.J. Matschull. Tree-dimansional Canonical Quantum Gravity. gr-qc/9506069, *Class. Quan. Grav.* **12**:2621-2704, (1995).

460. H.J. Matschull. New Representation and a Vacuun State for Canonical Quantum Gravity. gr-qc/9412020, *Class. Quan. Grav.* **12**:651-676, (1995).

461. G.A. Mena Marugán. Is the exponential of the Chern-Simons action a normalizable physical state? CGPG-94/2-2, gr-qc/9402034, *Class. Quan. Grav.* **12** (Feb. 1995) 435

462. S. Mizoguchi. The Geroch group in the Ashtekar formulation. *Phys. Rev.* **D51**:6788-6802, 1995. gr-qc/9411018.

463. H.A. Morales-Técotl and C. Rovelli. Loop Space Representation of Quantum Fermions and Gravity. *Nucl. Phys.* **B451** (1995) 325.

464. R. de Pietri and C. Rovelli. Eigenvalues of the Weyl Operator as Observables of General Relativity. *Class. Quan. Grav.* **12**:1279-1286 (1995).

465. J. Pullin. Recent Developments in Canonical Quantum Gravity. CAM-94 Physics Meeting, in AIP Conf. Proc **342**, 459, ed. Zepeda A (AIP Press, Woodbury, New York), 1995.

466. M. Reisenberger. New Constraints for Canonical General Relativity. *Nucl. Phys.* **B457**:643-687, 1995. gr-qc/9505044.

467. C. Rovelli. Outline of a generally covariant quantum field theory and a quantum theory of gravity. gr-qc/9503067, *J. Math. Phys.* **36**:6529-6547 (1995).

468. C. Rovelli and L. Smolin. Spin Networks and Quantum Gravity. gr-qc/9505006, *Phys. Rev.* **D52**:5743-5759.

469. C. Rovelli and L. Smolin. Discreteness of area and volume in quantum gravity. *Nucl. Phys.* **B442**:593-622 (1995). Erratum: *Nucl. Phys.* **B456**:734 (1995). gr-qc/9411005,

470. L. Smolin. Linking TQFT and Nonperturbative Quantum Gravity. gr-qc/9505028, *J. Math. Phys.* **36**:6417-6455 (1995).

471. L. Smolin and C. Soo. The Chern-Simons invariant as the natural time variable for classical and quantum cosmology. CGPG-94/4-1, gr-qc/9405015, *Nucl. Phys.* **B449**:289-316 (1995).

472. C. Soo. Self-dual variables, positive semi-definite action, and discrete transformations in 4-d quantum gravity. gr-qc/9504042, *Phys. Rev.* **D52**:3484-3493 (1995).

473. I. A. B. Strachan. The symmetry structure of the anti-self-dual Einstein hierarchy. *J. Math. Phys.* **36**:3566-3573, 1995. hep-th/9410047.

474. T. Thiemann. Generalized boundary conditions for general relativity for the asymptotically flat case in terms of Ashtekar's variables. *Class. Quan. Grav.* **12** (Jan. 1995) 181

475. T. Thiemann. Complete quantization of a diffeomorphism invariant field theory. *Class. Quan. Grav.* **12** (Jan. 1995) 59

476. T. Thiemann The reduced phase space of spherically symmetric Einstein-Maxwell theory including a cosmological constant. *Nucl. Phys.* **B436** (Feb. 1995) 681

477. T. Thiemann. An account of transforms on $\overline{\mathcal{A}/\mathcal{G}}$. *Acta Cosmologica* **21**:145-167, 1995. gr-qc/9511050.

478. M. Tsuda, T. Shirafuji and H. J. Xie, Ashtekar variables and matter coupling, arXiv:gr-qc/9501021.

479. M. Tsuda, T. Shirafuji and H. J. Xie, General considerations of matter coupling with the selfdual connection, *Class. Quan. Grav.* **12**, 3067 (1995), arXiv:gr-qc/9505019.

480. R.S. Tung and T. Jacobson. Spinor one forms as gravitational potentials *Class. Quan. Grav.* **12**:L51-L55, 1995. gr-qc/9502037.

481. R. P. Wallner. A new form of Einstein's equations, *J. Math. Phys.* **36** (1995) 6937-6969.

1996

482. D. Armand-Ugon, R. Gambini, O. Obregon and J. Pullin. Towards a loop representation for quantum canonical supergravity. hep-th/9508036, *Nucl. Phys.* **B460** (1996), 615

483. J. M. Aroca, H. Fort and R. Gambini The Path Integral for The Loop Representation of Lattice Gauge Theories. *Phys. Rev.* **D54**:7751-7756, 1996. hep-th/9605068

484. A. Ashtekar. A Generalized Wick Transform for Gravity. gr-qc/9511083, *Phys. Rev.* **D53**:2865-2869, (1996),

485. A. Ashtekar and J. Lewandowski. Quantum Field Theory of Geometry, in *Proceedings, Conference on Historical Examination and Philosophical Reflections on Foundations of Quantum Field Theory, Boston, MA, 1996.* hep-th/9603083

486. A. Ashtekar, J. Lewandowski, D. Marolf, J. Mourão and T. Thiemann. A manifestly gauge-invariant approach to quantum theories of gauge fields. in *Geometry of Constrained Dynamical Systems. Proceedings, Conference, Cambridge, UK, 1994.* J.M. Charap (ed), Cambridge University Press, 1996. hep-th/9408108

487. A. Ashtekar, J. Lewandowski, D. Marolf, J. Mourão and T. Thiemann. Coherent State Transforms for Spaces of Connections. *J. Functional Analysis* **135**:519-551, 1996. gr-qc/9412014.

488. J. F. Barbero and M. P. . Ryan, Minisuperspace Examples of Quantization Using Canonical Variables of the Ashtekar Type: Structure and Solutions, *Phys. Rev.* **D53**:5670 (1996) [arXiv:gr-qc/9510030].

489. J. C. Baez. Spin networks in gauge theory. *Advances in Mathematics* **117**:253, 1996. gr-qc/9411007.

490. J. C. Baez. Spin networks in nonperturbative quantum gravity. In *Interface of Knot Theory and Physics*, L. Kauffman (ed), American Mathematical Society, Providence, Rhode Island, 1996. gr-qc/9504036.

491. J.C. Baez. Knots and Quantum Gravity: Progress and Prospects. in *Proceedings of the Seventh Marcel Grossman Meeting on General Relativity*, ed. Robert T. Jantzen and G. Mac Keiser, World Scientific Press, Singapore, 1996, pp. 779–797. gr-qc/9410018.

492. J. F. Barbero G. From Euclidean to Lorenzian General Relativity: The Real Way, *Phys. Rev.* **D54**:1492-1499, 1996. gr-qc/9605066

493. R. De Pietri. Spin Networks and Recoupling in Loop Quantum Gravity, in *Proceedings of the 2nd Conference on Constrained Dynamics and Quantum Gravity, Santa Margherita, Italy, 1996.* gr-qc/9701041.

494. S. Frittelli, L. Lehner and C. Rovelli, The complete spectrum of the area from recoupling theory in loop quantum gravity, *Class. Quan. Grav.* **13**:2921 (1996) [arXiv:gr-qc/9608043].

495. J. F. Barbero and M. P. Ryan. Minisuperspace Examples of Quantization Using Canonical Variables of the Ashtekar Type: Structure and Solutions. *Phys. Rev.* **D53**:5670-5681, 1996. gr-qc/9510030.

496. M. Barreira, M. Carfora and C. Rovelli. Physics with nonperturbative quantum gravity: radiation from a quantum black hole. *Gen. Rel. Grav.* **28**:1293-1299, 1996. gr-qc/9603064.

497. R. Borissov, S. Major and L. Smolin, The Geometry of Quantum Spin Networks. *Class. Quan. Grav.* **13**:3183-3196, 1996. gr-qc/9512043.

498. B. Brugmann, On the constraint algebra of quantum gravity in the loop representation, *Nucl. Phys.* **B474**, 249 (1996) [arXiv:gr-qc/9512036].

499. L. N. Chang and Chopin Soo. Chiral fermions, gravity and GUTs. CGPG-94/9-3, hep-th/9411064, *Phys. Rev.* **D53**:5682-5691 (1996).

500. L. Chang and C. Soo. The standard model with gravity couplings. *Phys. Rev.* **D53**, 1996, pp.5682-5691. CGPG-94/6-2.

501. R. De Pietri and C. Rovelli. Geometry Eigenvalues and Scalar Product from Recoupling Theory in Loop Quantum Gravity. gr-qc/9602023, *Phys. Rev.* **D54**:2664-2690 (1996).

502. Ch. Devchand and V. Ogievetsky. Self-dual Gravity Revisited. *Class. Quan. Grav.* **13**, 2515-2536 (1996). JINR-E2-94-342, hep-th/9409160.

503. C. Di Bartolo. The Gauss constraint in the extended loop representation. *Phys. Lett.* **B389** (1996) 661-664. gr-qc/9607014.

504. K. Ezawa. A Semiclassical Interpretation of the Topological Solutions for Canonical Quantum Gravity. gr-qc/9512017, *Phys. Rev.* **D53**:5651-5663 (1996).

505. K. Ezawa. Multi-plaquette solutions for discretized Ashtekar gravity. gr-qc/9510019, *Mod. Phys. Lett.* **A**:349-356 (1996).

506. K. Ezawa. Ashtekar's formulation for $N = 1, 2$ supergravities as "constrained" BF theories. hep-th/9511047, *Prog. Theor. Phys.* **95**:863 (1996).

507. S. Fritelli, L. Lehner and C. Rovelli. The complete spectrum of the area from recoupling theory in loop quantum gravity. *Class. Quan. Grav.* **13**:2921-2932,1996. gr-qc/9608043.

508. R. Gambini and J. Pullin. A rigorous solution of the quantum Einstein equations. *Phys. Rev.* **D54**:5935-5938, 1996. gr-qc/9511042.

509. R. Gambini and J. Pullin. Knot theory and the dynamics of quantum general relativity. *Class. Quan. Grav.* **13**:L125, 1996. gr-qc/9603019.

510. H. Garcia-Compean, L. E. Morales and J. F. Plebanski. A Hopf algebra structure in self-dual gravity. *Rev. Mex. Fis.* **42**:695, 1996. hep-th/9410154.

511. H. Garcia-Compean, J. Plebanski and M. Przanowski. From Principal chiral model to selfdual gravity. *Mod. Phys. Lett.* **A11**:663-674, 1996.

512. H. Garcia-Compean, J. Plebanski and M. Przanowski Further remarks on the chiral model approach to self dual gravity.*Phys. Lett.* **219A**:249-256, 1996. hep-th/9512013

513. J.N. Goldberg. Generalized Hamilton-Jacobi transformations: gauge and diffeomorphism constraint. *Phys. Rev.* **D54**:4997-5001, 1996.

514. J. Griego. Extended knots and the space of states of quantum gravity. *Nucl. Phys.* **B473**:291-307, 1996. gr-qc/9601007.

515. J. Griego. The Kauffman Bracket and the Jones Polynomial in Quantum Gravity. *Nucl. Phys.* **B467**:332-354, 1996. gr-qc/9510050.

516. J. Griego. Is the Third Coefficient of the Jones Knot Polynomial a Quantum State of Gravity? *Phys. Rev.* **D53**:6966-6978, 1996. gr-qc/9510051.

517. N. Grot and C. Rovelli. Moduli-space of knots with intersections. gr-qc/960410, *J. Math. Phys.* **37**:3014-3021 (1996).

518. H. Ishihara, H. Kubotani and T. Fukuyama. Gravitational Instantons in Ashtekar's Formalism. *Int. J. Mod. Phys.* **A11**:2707-2720, 1996. gr-qc/9509009.

519. T. Jacobson. 1+1 sector of 3+1 gravity. *Class. Quan. Grav.* **13**:L111-L116, 1996. erratum-ibid **13**:3269, 1996. gr-qc/9604003.

520. S. Holst. Barbero's Hamiltonian derived from a generalized Hilbert-Palatini action. *Phys. Rev.* **D53**:5966-5969, 1996. gr-qc/9511026.

521. V. Husain. Einstein's equations and the chiral model. gr-qc/9602050, *Phys. Rev.* **D53** (1996), 4327

522. V. Husain. General Covariance, and Supersymmetry Without Supersymmetry. *Phys. Rev.* **D54**:7849-7856, 1996. hep-th/9609009.

523. G. Immirzi Quantizing Regge Calculus. *Class. Quan. Grav.* **13**:2385-2394, 1996. gr-qc/9512040.

524. K. Krasnov. Quantum loop representation for fermions coupled to Einstein-Maxwell field. *Phys. Rev.* **D53**:1874-1888, 1996.

525. S. R. Lau. New Variables, the gravitational action, and boosted quasilocal stress-energy-momentum. *Class. Quan. Grav.* **13**:1509-1540, 1996. gr-qc/9504026.

526. L. Leal. Electric-Magnetic duality and the 'Loop Representation' in Abelian gauge theories. *Mod. Phys. Lett.* **A11**:1107-1114, 1996.

527. R. Loll. Spectrum of the volume operator in quantum gravity. gr-qc/9511030 *Nucl. Phys.* **B460**:143-154, (1996).

528. R. Loll. A real alternative to quantum gravity in loop space. *Phys. Rev.* **D54**:5381, 1996. gr-qc/9602041.

529. R. Loll, J. Mourão, J. Tavares. Complexification of gauge theories. *Journal of Geometry and Physics* **17** (1996) 1-24. hep-th/9307142

530. S. Major and L. Smolin. Quantum Deformation of Quantum Gravity. *Nucl. Phys.* **B473**:267-290, 1996. gr-qc/9512020.

531. H. A. Morales-Tecotl, L. F. Urrutia and J. D. Vergara, Reality conditions for Ashtekar variables as Dirac constraints, *Class. Quan. Grav.* **13**:2933 (1996) [arXiv:gr-qc/9607044].

532. H.J. Matschull. Causal Structure and Diffeomorphisms in Ashteker's Gravity. gr-qc/9511034, *Class. Quan. Grav.* **13**:765-782, (1996).

533. G. Mena Marugán. Involutions on the algebra of physical observables from reality conditions. *J. Math. Phys.* **37**:196-205, 1996. gr-qc/9506038.

534. H.A. Morales-Técotl, L.F. Urrutia and J.D. Vergara. Reality Conditions for Ashtekar Variables as Dirac Constraints. *Class. Quan. Grav.* **13**:2933-2940, 1996. gr-qc/9607044.

535. P. Peldan. Large Diffeomorphisms in (2+1)-Quantum Gravity on the Torus. CGPG-95/1-1, gr-qc/9501020 *Phys. Rev.* **D53** (1996), 3147

536. J. Plebanski and M. Przanowski. The Lagrangian of a self-dual gravitational field as a limit of the SDYM Lagrangian. *Phys. Lett.* **212A**:22. 1996. hep-th/9605233.

537. C. Rovelli. Loop Quantum Gravity and Black hole Physics. *Helv. Phys. Acta* **69**:582-611, 1996. gr-qc/9608032.

538. C. Rovelli. Black hole entropy from loop quantum gravity. *Phys. Rev. Lett.* **77**:3288-3291, 1996. gr-qc/9603063.

539. T.A. Schilling. Non-covariance of the generalized holonomies: Examples. *J. Math. Phys.* **37**, 4041 (1996). CGPG-95/3-1, gr-qc/9503064.

540. T. Thiemann. Reality conditions inducing transforms for quantum gauge field theory and quantum gravity. *Class. Quan. Grav.* **13**:1383-1404, 1996. gr-qc/9511057.

541. T. Thiemann. Anomaly-Free Formulation of Nonperturbative Four-dimensional Lorentzian Quantum Gravity. *Phys. Lett.* **B380**:257-264, 1996. gr-qc/9606088.

542. H. Waelbroeck and J.A. Zapata. 2+1 covariant lattice theory and 't Hooft's formulation. *Class. Quan. Grav.* **13**:1761-1768, 1996. gr-qc/9601011.

543. G. Yoneda and H. Shinkai. Constraints and reality conditions in the Ashtekar formulation of general relativity. *Class. Quan. Grav.* **13**:783-790, 1996. gr-qc/9602026.

544. J. A. Zapata. Topological lattice gravity using self dual variables. *Class. Quan. Grav.* **13**:2617-2634, 1996. gr-qc/9603030.

1997

545. D. Altschuler & L. Freidel. Vasilev knot invariants and Chern–Simons perturbation theory to all orders. *Commun. Math. Phys.* **187**:261–287, 1997. [q–alg/9603010]

546. A. Ashtekar. Geometric Issues in Quantum Gravity, in *Geometric Issues in the Foundation of Science*, L. Mason et al (eds.) (Oxford University Press, 1997). CGPG-96-61-4.

547. A. Ashtekar. Polymer Geometry at Planck Scale and Quantum Einstein Equations. in *Proceedings of the 14th International Conference on General Relativity and Gravitation*, M. Francaviglia (ed) World Scientific, Singapore, 1997. hep-th/9601054.

548. A. Ashtekar. Quantum Mechanics of Riemannian Geometry. in *the Proceedings of the Barcelona Workshop Fisica I Geometria and Pacific Conference on Gravitation and Cosmology*, edited by D. Jou (Institut D'Estudis Catan, Barcelona, 1997).

549. A. Ashtekar and A. Corichi, Gauss linking number and electro-magnetic uncertainty principle, *Phys. Rev.* **D56**: 2073 (1997) [arXiv:hep-th/9701136].

550. A. Ashtekar and A. Corichi. Photon Inner Product and the Gauss Linking Number. *Class. Quan. Grav.* **14**:A43-A53, 1997. gr-qc/9608017.

551. A. Ashtekar and J. Lewandowski. Quantum Theory of Geometry I: Area Operators. *Class. Quan. Grav.* **14**:A55-A81, 1997. gr-qc/9602046.

552. A. Ashtekar, J. Lewandowski, D. Marolf, J. Mourao and T. Thiemann, SU(N) quantum Yang-Mills theory in two dimensions: A complete solution, *J. Math. Phys.* **38**: 5453 (1997) [arXiv:hep-th/9605128].

553. J.C. Baez and S. Sawin. Functional Integration on Spaces of Connections. *Jour. Funct. Analysis* **150**, 1-27 (1997). q-alg/9507023.

554. I. Bengtsson and A. Kleppe. On chiral P forms. *Int. J. Mod. Phys.* **A12**, No. 19 (1997) 3397-3411. hep-th/9609102.

555. G. Barnich and V. Husain, Geometrical representation of the constraints of Euclidean general relativity, *Class. Quan. Grav.* **14**: 1043 (1997) [arXiv:gr-qc/9611030].

556. R. Borissov, Operator calculations in loop quantum gravity, *Nucl. Phys. Proc. Suppl.* **57**:237 (1997).

557. R. Borissov. Regularization of the Hamiltonian constraint and the closure of the constraint algebra. *Phys. Rev.* **D55**:2059-2068, 1997. gr-qc/9411038.

558. R. Borissov Graphical evolution of spin network states. *Phys. Rev.* **D55**:6099–6111, 1997. [gr–qc/9606013]

559. R. Borissov, R. De Pietri & C. Rovelli. Matrix elements of Thiemann's Hamiltonian constraint in loop quantum gravity. *Class. Quan. Grav.* **14**:2793–2823, 1997. [gr–qc/9703090]

560. A. Corichi and J. A. Zapata, On diffeomorphism invariance for lattice theories, *Nucl. Phys.* **B493**: 475 (1997) [arXiv:gr-qc/9611034].

561. R. De Pietri, The equivalence between the connection and the loop representation of quantum gravity, in *Jerusalem 1997, Recent developments in theoretical and experimental general relativity, gravitation, and relativistic field theories, Pt.B* 892-894. arXiv:gr-qc/9711021.

562. R. De Pietri. On the relation between the connection and the loop representation of quantum gravity. *Class. Quan. Grav.* **14**: 53-69, 1997. gr-qc/9605064.

563. R. De Pietri, Spin networks and recoupling in loop quantum gravity, *Nucl. Phys. Proc. Suppl.* **57**: 251 (1997) [arXiv:gr-qc/9701041].

564. H. Fort, R. Gambini and J. Pullin, Lattice knot theory and quantum gravity in the loop representation, *Phys. Rev.* **D56**: 2127 (1997) [arXiv:gr-qc/9608033].

565. B.P. Dolan and K.P. Haugh. A Covariant Approach to Ashtekar's Canonical Gravity, *Class. Quan. Grav.* **14**:477-488, 1997.

566. K. Ezawa Nonperturbative solutions for canonical quantum gravity: An Overview. *Phys. Rept.* **286**:271–348, 1997. [gr–qc/9601050]

567. H. Fort, R. Gambini & J. Pullin. Lattice knot theory and quantum gravity in the loop representation. *Phys. Rev.* **D56**:2127–2143, 1997. [gr–qc/9608033]

568. R. Gambini & J. Pullin. Variational derivation of exact skein relations from Chern–Simons theories. *Commun. Math. Phys.* **185**:621–640, 1997. [hep–th/9602165]

569. R. Gambini, J. Griego & J. Pullin. Chern–Simons states in spin network quantum gravity. *Mod. Phys. Lett.* **B413**:260–266, 1997. [gr–qc/9703042]

570. N. Grot & C. Rovelli. Weave states in loop quantum gravity. *Gen. Rel. Grav.* **29**: 1039–1048, 1997.

571. Y. Hashimoto, Y. Yasui, S. Miyagi and T. Otsuka, Applications of the Ashtekar gravity to four dimensional hyperKaehler geometry and Yang-Mills instantons, *J. Math. Phys.* **38**, 5833 (1997) [arXiv:hep-th/9610069].

572. V. Husain & S. Major. Gravity and BF theory defined in bounded regions. *Nucl. Phys.* **B500**: 381–401, 1997. [gr–qc/9703043]

573. G. Immirzi. Quantum gravity and Regge calculus. in *2nd Meeting on Constrained Dynamics and Quantum Gravity*, Santa Margherita, Italy, 1996. *Nucl. Phys. Proc. Suppl.* **57** (1997) 65-72. gr-qc/9701052.

574. G. Immirzi, Real and complex connections for canonical gravity, *Class. Quan. Grav.* **14**: L177 (1997) [arXiv:gr-qc/9612030].

575. V. M. Khatsymovsky, Ashtekar Constraint Surface as Projection of Hilbert-Palatini One, *Phys. Lett.* **B394**, 57 (1997) [arXiv:gr-qc/9604053].

576. K. Krasnov. Geometrical entropy from loop quantum gravity. *Phys. Rev.* **D55**:3505, 1997. gr-qc/9603025.

577. J. Lewandowski. Volume and Quantizations. *Class. Quan. Grav.* **14**:71-76, 1997. gr-qc/9602035.

578. J. Lewandowski and J. Wisniewski, 2+1 sector of 3+1 gravity, *Class. Quan. Grav.* **14**: 775 (1997) [arXiv:gr-qc/9609019].

579. R. Loll, Further results on geometric operators in quantum gravity, *Class. Quan. Grav.* **14**: 1725 (1997) [arXiv:gr-qc/9612068].

580. R. Loll, Imposing det $E > 0$ in discrete quantum gravity, *Phys. Lett.* **B399** (1997) 227-232. gr-qc/9703033.

581. R. Loll. Still on the way to quantizing gravity in Dremin, I.M., and Semikhatov, A.M., eds., Proceedings of the 2nd International Sakharov Conference on Physics, 280283, (World Scientic, Singapore, 1997). gr-qc/9701032.

582. R. Loll Wilson loop coordinates for 2+1 gravity. in Bassan, M. et al., ed., Proceedings of the 12th Italian Conference on General Relativity and Gravitational Physics, 280-283, (World Scientific, Singapore, 1997). Preprint CGPG-94/8-1.

583. F. Markopoulou & L. Smolin. Causal evolution of spin networks. *Nucl. Phys.* **B508**:409–430, 1997. [gr–qc/9702025]

584. D. Marolf, J. Mourao & T. Thiemann. The Status of diffeomorphism superselection in Euclidean (2+1) gravity. *J. Math. Phys.* **38**:4730–4740, 1997. [gr–qc/9701068]

585. G.A. Mena Marugan, Canonical quantization of the Gowdy model, *Phys. Rev.* **D56**, 908-919 (1997) [gr-qc/9704041].

586. M. Montesinos–Velasquez, H.A. Morales– Tecotl & Tonatiuh Matos. Fermion mass gap in the loop representation of quantum gravity. *Class. Quan. Grav.* **14**:L135–L142, 1997. [gr–qc/9704066]

587. D. E. Neville. Open-flux solutions to the constraints for plane gravity waves. *Phys. Rev.* **D55**: 766-780, 1997. gr-qc/9511061.

588. D. E. Neville. Closed flux solutions to the quantum constraints for plane gravity waves. *Phys. Rev.* **D55**: 2069-2075, 1997. gr-qc/9607053.

589. J. A. Nieto, J. Socorro and O. Obregon, Gauge theory of supergravity based only on a selfdual spin connection, *Phys. Rev. Lett.* **76**, 3482 (1996).

590. J. Pullin. Canonical quantum gravity with new variables and loops: a report in *Gravitation and Cosmology*, S. Dhurandhar and T. Padmanabhan (Eds), Kluwer Academic Publishing, Amsterdam 1997, pp 199-210. gr-qc/9606061.

591. M. Reisenberger. A Left-Handed Simplicial Action for Euclidean General Relativity. *Class. Quan. Grav.* **14**, 1753-1770 (1997). gr-qc/9609002.

592. M. P. Reisenberger and C. Rovelli, "Sum over surfaces"' form of loop quantum gravity, *Phys. Rev.* **D56**:3490 (1997) [arXiv:gr-qc/9612035].

593. C. Rovelli, "Quantum gravity as a 'sum over surfaces", *Nuclear Physics B (Proc Suppl)* **57** (1997) 28-43.

594. L. Smolin. Experimental Signatures of Quantum Gravity. in *The Proceedings of the 1994 Drexel Symposium on Quantum Theory and Measurement*, World Scientific, 1997 gr-qc/9503027.

595. V. O. Solovev, The algebra independence of boundary conditions in the Ashtekar formalism," *Theor. Math. Phys.* **112**, 906 (1997) [*Teor. Mat. Fiz.* **112N1**, 142 (1997)] [arXiv:gr-qc/9809058].

596. T. Thiemann. An axiomatic approach to quantum gauge field theory. *Banach Center Publications* Vol. 39, 1997 Symplectic Singularities and Geometry of Gauge Fields Editors of the volume: Robert Budzynski, Stanislaw Janeczko, Witold Kondracki, Alfred F. Kunzle p 389-403. hep-th/9511122.

597. T. C. Toh, The loop algebra of quantum gravity, *Helv. Phys. Acta* **70**:417 (1997).

598. J. A. Zapata, Combinatorial space from loop quantum gravity, *Gen. Rel. Grav.* **30**: 1229 (1998) [arXiv:gr-qc/9703038].

599. J. A. Zapata, A combinatorial approach to diffeomorphism invariant quantum gauge theories, *J. Math. Phys.* **38**: 5663 (1997) [arXiv:gr-qc/9703037].

600. G. Yoneda, H. a. Shinkai and A. Nakamichi, A trick for passing degenerate points in Ashtekar formulation, *Phys. Rev.* **D56**, 2086 (1997) [arXiv:gr-qc/9704081].

1998

601. S. Y. Alexandrov and D. V. Vassilevich, Path integral for the Hilbert-Palatini and Ashtekar gravity, *Phys. Rev.* **D58**, 124029 (1998) [arXiv:gr-qc/9806001].

602. G. Amelino-Camelia, On the area operators of the Husain-Kuchar-Rovelli model and canonical/loop quantum gravity, *Mod. Phys. Lett.* **A13**:1155 (1998) [arXiv:gr-qc/9804063].

603. J.M. Aroca, H. Fort & R. Gambini. World sheet formulation for lattice staggered fermions. *Phys. Rev.* **D57**:3701–3710, 1998

604. J.M. Aroca, H. Fort and R. Gambini. On the path integral loop representation of (2+1) lattice non-Abelian theory. *Phys. Rev.* **D58**, 045007, 1998. arXiv: hep-lat/9703007.

605. A. Ashtekar, J. Baez, A. Corichi & K. Krasnov. Quantum geometry and black hole entropy. *Phys. Rev. Lett.* **80**: 904–907, 1998. [gr-qc/9710007]

606. A. Ashtekar, A. Corichi & J. A. Zapata. Quantum theory of geometry III: Noncommutativity of riemannian structures. *Class. Quan. Grav.* **15**: 2955–2972, 1998 e–Print Archive: gr–qc/9806041

607. J. C. Baez, Degenerate solutions of general relativity from topological field theory, *Commun. Math. Phys.* **193**: 219 (1998) [arXiv:gr-qc/9702051].

608. J.C. Baez & K.V. Krasnov. Quantization of diffeomorphism invariant theories with fermions. *J. Math. Phys.* **39**:1251–1271, 1998. [hep–th/9703112]

609. J.W. Barrett. The Classical evaluation of relativistic spin networks. *Adv. Theor. Math. Phys.* **2**:593–600, 1998. [math.qa/9803063]

610. J.W. Barrett & L. Crane. Relativistic spin networks and quantum gravity. *J. Math. Phys.* **39**:3296–3302, 1998. [gr–qc/9709028]

611. S. Chakraborty and N. Chakravarty, A study of Kantowski-Sachs model in Ashtekar variables, *Int. J. Mod. Phys.* **A13**:4931 (1998).

612. A. Corichi & K.V. Krasnov. Ambiguities in loop quantization: Area versus electric charge. *Mod. Phys. Lett.* **A13**:1339–1346, 1998.

613. R. De Pietri, Canonical 'loop' quantum gravity and spin foam models, in Proceeding of the XXIII SIGRAV conference, Monopoli (Italy), September 1998. arXiv:gr-qc/9903076.

614. R. Gambini, J. Griego & J. Pullin. A Spin network generalization of the Jones polynomial and Vassilev invariants. *Mod. Phys. Lett.* **B425**:41–47, 1998. [q–alg/9711014]

615. R. Gambini, J. Griego &, J. Pullin. Vassiliev invariants: A New framework for quantum gravity. *Nucl. Phys.* **B534**:675–696, 1998. [gr–qc/9803018]

616. R. Gambini, J. Lewandowski, D. Marolf & J. Pullin. On the consistency of the constraint algebra in spin network quantum gravity. *Int. J. Mod. Phys.* **D7**:97–109, 1998. [gr–qc/9710018]

617. R. Gambini, H.A. Morales–Tecotl, L.F. Urrutia & J.D. Vergara. Loop variables for compact two–dimensional quantum electrodynamics. *Phys. Rev.* **D57**:3711–3724, 1998. [hep–th/9712096]

618. R. Gambini and J. Pullin, Does loop quantum gravity imply Lambda = 0?, *Phys. Lett.* **B437**:279 (1998) [arXiv:gr-qc/9803097].

619. L. J. Garay and G. A. Mena Marugan, Thiemann transform for gravity with matter fields," *Class. Quan. Grav.* **15**, 3763 (1998) [arXiv:gr-qc/9805010].

620. H. Garcia–Compean, J. Plebanski and M. Przanowski. Geometry associated with self-dual Yang-Mills and the chiral model approach to selfdual gravity. *Acta Physica Polonica* **B29**, 549-571, 1998. hep-th/9702046.

621. C.M. Granzow & G. Mahler. Quantum trajectories of interacting pseudo spin networks. *Appl. Phys.* **B67**:733–741, 1998. [quant–ph/9901004]

622. M. S. Iriondo, E. O. Leguizamon and O. A. Reula, On the dynamics of Einstein's equations in the Ashtekar formulation, *Adv. Theor. Math. Phys.* **2**, 1075 (1998) [arXiv:gr-qc/9804019].

623. K.V. Krasnov. Note on the area spectrum in quantum gravity. *Class. Quan. Grav.* **15**:L47–L53, 1998. [gr–qc/9803074]

624. K.V. Krasnov. On Quantum statistical mechanics of Schwarzschild black hole. *Gen. Rel. Grav.* **30**:53–68, 1998. [gr–qc/9605047]

625. K.V. Krasnov. On the constant that fixes the area spectrum in canonical quantum gravity. *Class. Quan. Grav.* **15**:L1–L4, 1998. [gr–qc/9709058]

626. J. Lewandowski & D. Marolf. Loop constraints: A Habitat and their algebra. *Int. J. Mod. Phys.* **D7**:299–330, 1998. [gr–qc/9710016]

627. R. Loll, Discrete approaches to quantum gravity in four dimensions, *Living Rev. Rel.* **1**, 13 (1998) [arXiv:gr-qc/9805049].

628. R. Loll, On the diffeomorphism-commutators of lattice quantum gravity, *Class. Quan. Grav.* **15**, 799 (1998) [arXiv:gr-qc/9708025].

629. Y. Ma and C. Liang, Evolution of degenerate spacetime from non-degenerate initial value in Ashtekar's formalism, *Gen. Rel. Grav.* **30** (1998), 1391. 2.

630. Y. Ma and C. Liang, The degenerate sector of Ashtekar's phase space, *Mod. Phys. Lett.* **A13** (1998), 2839.

631. F. Markopoulou & L. Smolin. Nonperturbative dynamics for abstract (p, q) string networks. *Phys. Rev.* **D58**:084033, 1998. [hep–th/9712148]

632. F. Markopoulou & L. Smolin. Quantum geometry with intrinsic local causality. *Phys. Rev.* **D58**:084032, 1998. [gr–qc/9712067]

633. G. A. Mena Marugan, Geometric interpretation of Thiemann's generalized Wick transform, *Grav. Cosmol.* **4**, 257 (1998) [arXiv:gr-qc/9705031].

634. E. W. Mielke, Chern-Simons solution of the Ashtekar constraints for the teleparallelism equivalent of gravity," *Acta Phys. Polon.* B **29**, 871 (1998).

635. A. Mikovic & N. Manojlovic. Remarks on the reduced phase space of (2+1)–dimensional gravity on a torus in the Ashtekar formulation. *Class. Quan. Grav.* **15**:3031–3039, 1998. [gr–qc/9712011]

636. M. Montesinos & C. Rovelli. The Fermionic contribution to the spectrum of the area operator in nonperturbative quantum gravity. *Class. Quan. Grav.* **15**:3795–3801, 1998. [gr–qc/9806120]

637. C. Rovelli, Loop quantum gravity, *Living Rev. Rel.* **1**:1 (1998) [arXiv:gr-qc/9710008].

638. C. Rovelli, Strings, loops and others: A critical survey of the present approaches to quantum gravity, in *Gravitation and Relativity: At the turn of the Millennium, 15th International Conference on General Relativity and Gravitation.* Edited by Naresh Dadhich and Jayant Narlikar. Published by Inter-University Centre for Astronomy and Astrophysics, 1998., p.281. *Preprint* gr-qc/9803024

639. C. Rovelli & T. Thiemann. The Immirzi parameter in quantum general relativity. *Phys. Rev.* **D57**: 1009–1014, 1998. [gr–qc/9705059]

640. L. Smolin. The future of spin networks, in *Geometric Issues in the Foundation of Science*, L. Mason et al (eds.) (Oxford University Press, 1998). qr-qc/9702030.

641. T. Thiemann, A length operator for canonical quantum gravity, *J. Math. Phys.* **39**, 3372 (1998) [arXiv:gr-qc/9606092].

642. T. Thiemann, Closed formula for the matrix elements of the volume operator in canonical quantum gravity, *J. Math. Phys.* **39**: 3347 (1998) [arXiv:gr-qc/9606091].

643. T. Thiemann. Quantum spin dynamics (QSD). *Class. Quan. Grav.* **15**:839–873, 1998. [gr–qc/9606089]

644. T. Thiemann. Quantum spin dynamics (QSD) 2. *Class. Quan. Grav.* **15**:875–905, 1998. [gr–qc/9606090]

645. T. Thiemann. QSD 3: Quantum constraint algebra and physical scalar product in quantum general relativity. *Class. Quan. Grav.* **15**:1207–1247, 1998. [gr–qc/9705017]

646. T. Thiemann. QSD 4: (2+1) Euclidean quantum gravity as a model to test (3+1) Lorentzian quantum gravity. *Class. Quan. Grav.* **15**:1249–1280, 1998. [gr–qc/9705018]

647. T. Thiemann. QSD 5: Quantum gravity as the natural regulator of matter quantum field theories. *Class. Quan. Grav.* **15**:1281–1314, 1998. [gr–qc/9705019]

648. T. Thiemann. QSD 6: Quantum Poincare algebra and a quantum positivity of energy theorem for canonical quantum gravity. *Class. Quan. Grav.* **15**:1463–1485, 1998. [gr–qc/9705020]

649. T. Thiemann. Kinematical Hilbert spaces for Fermionic and Higgs quantum field theories. *Class. Quan. Grav.* **15**:1487–1512, 1998. [gr–qc/9705021]

650. T. Thiemann. The inverse loop transform, *J. Math. Phys.* **39** (1998) 1236-1248. hep-th/9601105.

651. M. Zagermann, Metric Versus Ashtekar Variables in Two Killing Field Reduced Gravity, *Class. Quan. Grav.* **15**:1367 (1998) [arXiv:gr-qc/9710133].

1999

652. J.M. Aroca & Y. Kubyshin. Calculation of wilson loops in two–dimensional yang–mills theories. Jan 1999. 45pp. Published in *Ann. Phys. (N.Y.)* **283**:11–56, 2000 e–Print Archive: hep–th/9901155.

653. M. Arnsdorf and R. S. Garcia, Existence of spinorial states in pure loop quantum gravity, *Class. Quan. Grav.* **16**, 3405 (1999) [arXiv:gr-qc/9812006].

654. A. Ashtekar. Classical & quantum physics of isolated horizons: a brief overview. *Lect. Notes Phys.* **541**:50–70, 2000 Also in *Polanica 1999, Towards quantum gravity* 50–70

655. A. Ashtekar. Interface of general relativity, quantum physics and statistical mechanics: some recent developments. *Annalen Phys.* **9**:178–198, 2000 e–Print Archive: gr–qc/9910101

656. J.C. Baez & J.W. Barrett. The Quantum tetrahedron in three–dimensions and four–dimensions. *Adv. Theor. Math. Phys.* **3**:815–850, 1999. [gr–qc/9903060]

657. J. F. Barbero and M. Varadarajan, A Comment on the Degrees of Freedom in the Ashtekar Formulation for 2+1 Gravity, Class. Quant. Grav. **16**, 3765 (1999) [arXiv:gr-qc/9909036].

658. J.W. Barrett, M.Rocek & R.M. Williams. A Note on area variables in Regge calculus. *Class. Quan. Grav.* **16**:1373–1376, 1999. [gr–qc/9710056]

659. J.W. Barrett & R.M. Williams. The Asymptotics of an amplitude for the four simplex. *Adv. Theor. Math. Phys.* **3**:209–215, 1999. [gr–qc/9809032]

660. R. Borissov & S. Gupta. Propagating spin modes in canonical quantum gravity. *Phys. Rev.* **D60**:024002, 1999. [gr–qc/9810024]

661. R. De Pietri & L. Freidel. SO(4) Plebanski action and relativistic spin foam model. *Class. Quan. Grav.* **16**:2187–2196, 1999. [gr–qc/9804071]

662. C. Fleischhack, A new type of loop independence and SU(N) quantum Yang-Mills theory in two dimensions, *J. Math. Phys.* **40**, 2584 (1999), [J. Math. Phys. **41**, 76 (2000)].

663. L. Freidel & K. Krasnov. Discrete space–time volume for three–dimensional BF theory and quantum gravity. *Class. Quan. Grav.* **16**:351–362, 1999. [hep–th/9804185]

664. L. Freidel, K. Krasnov & R. Puzio. BF description of higher dimensional gravity theories. *Adv. Theor. Math. Phys.* **3**:1289–1324, 1999. [hep–th/9901069]

665. L. Freidel & K. Krasnov. Spin foam models and the classical action principle. *Adv. Theor. Math. Phys.* **2**:1183–1247, 1999. [hep–th/9807092]

666. R. Gambini, O. Obregon & J. Pullin. Yang–Mills analogs of the Immirzi ambiguity. *Phys. Rev.* **D59**:047505, 1999. [gr–qc/9801055]

667. R. Gambini & J. Pullin. Nonstandard optics from quantum space–time. By *Phys. Rev.* **D59**:124021, 1999. [gr–qc/9809038]

668. R. Gambini & J. Pullin. Quantum gravity experimental physics? *Gen. Rel. Grav.* **31**:1631–1637, 1999.

669. H. Garcia-Compean, J. A. Nieto, O. Obregon and C. Ramirez, Dual description of supergravity MacDowell-Mansouri theory, *Phys. Rev.* **D59**, 124003 (1999) [arXiv:hep-th/9812175].

670. V. Husain Apparent horizons, black hole entropy and loop quantum gravity. *Phys. Rev.* **D59**:084019, 1999. [gr–qc/9806115]

671. V. Husain. Diffeomorphism invariant $SU(N)$ gauge theories. *Class. Quan. Grav.* **16**:1455–1461, 1999. [hep–th/9901127]

672. V. Husain. Initial data for gravity coupled to scalar, electromagnetic and Yang–Mills fields. *Phys. Rev.* **D59**:044004, 1999. [gr–qc/9805100]

673. V. Husain & S. Jaimungal. Topological holography. *Phys. Rev.* **D60**:061501, 1999. [hep–th/9812162]

674. K.V. Krasnov Quanta of geometry and rotating black holes. *Class. Quan. Grav.* **16**:L15–L18, 1999. [gr–qc/9902015]

675. K.V. Krasnov Quantum geometry and thermal radiation from black holes. *Class. Quan. Grav.* **16**:563–578, 1999. [gr–qc/9710006]

676. J. Lewandowski & T. Thiemann. Diffeomorphism invariant quantum field theories of connections in terms of webs. *Class. Quan. Grav.* **16**:2299–2322, 1999. [gr–qc/9901015]

677. J. Lewandowski & J. Wisniewski. Degenerate sectors of the Ashtekar gravity. *Class. Quan. Grav.* **16**:3057–3069, 1999. [gr–qc/9902037]

678. Y. Ma, C. Liang, and Z. Kuang, On the degenerate phase boundaries, *Class. Quan. Grav.* **16**, 905 (1999). [gr-qc/9904063].

679. Y. Ma and C. Liang, Causal structure and degenerate phase boundaries, *Phys. Rev.* **D59**, 044008 (1999) [arXiv:gr-qc/9904075].

680. S. A. Major, A spin network primer, *Am. J. Phys.* **67**, 972 (1999). [arXiv:gr-qc/9905020].

681. S. A. Major, Operators for quantized directions, *Class. Quan. Grav.* **16**, 3859 (1999). [arXiv:gr-qc/9905019].

682. S. A. Major, Embedded graph invariants in Chern-Simons theory, *Nucl. Phys.* **B550**, 531 (1999). [arXiv:hep-th/9810071].

683. M. Montesinos, H.A. Morales–Tecotl, L.F. Urrutia & J.D. Vergara. Real sector of the nonminimally coupled scalar field to selfdual gravity. *J. Math. Phys.* **40**:1504–1517, 1999. [gr–qc/9903043]

684. M. Montesinos, H.A. Morales–Tecotl, L.F. Urrutia, J.D. Vergara. Complex canonical gravity and reality constraints. *Gen. Rel. Grav.* **31**:719–723, 1999.

685. M. Montesinos, C. Rovelli & T. Thiemann. SL(2, R) mode with two Hamiltonian constraints. *Phys. Rev.* **D60**:044009, 1999. [gr–qc/9901073]

686. J.M. Mourao, T. Thiemann & J.M. Velhinho. Physical properties of quantum field theory measures. *J. Math. Phys.* **40**:2337–2353, 1999. [hep–th/9711139]

687. J. A. Nieto and J. Socorro, Self-dual gravity and self-dual Yang-Mills in the context of Macdowell-Mansouri formalism, *Phys. Rev.* **D59**, 041501 (1999) [arXiv:hep-th/9807147].

688. T. Ootsuka, S. Miyagi, Y. Yasui and S. Zeze, Anti-self-dual Maxwell solutions on hyperKaehler manifold and N = 2 supersymmetric Ashtekar gravity, *Class. Quan. Grav.* **16**, 1305 (1999) [arXiv:gr-qc/9809083].

689. C. Rovelli. The Projector on physical states in loop quantum gravity. *Phys. Rev.* **D59**:104015, 1999. [gr–qc/9806121]

690. L. Smolin. The new universe around the next corner. *Phys. World* **12N12**:79–84, 1999.

691. G. Yoneda and H. a. Shinkai, Symmetric hyperbolic system in the Ashtekar formulation, *Phys. Rev. Lett.* **82**, 263 (1999) [arXiv:gr-qc/9803077].

2000

692. J. Alfaro, H.A. Morales–Tecotl, L.F. Urrutia. Quantum gravity corrections to neutrino propagation. *Phys. Rev. Lett.* **84**:2318–2321, 2000. [gr–qc/9909079]

693. M. Arnsdorf & S. Gupta. Loop quantum gravity on noncompact spaces. *Nucl. Phys.* **B577**:529–546, 2000. [gr–qc/9909053]

694. A. Ashtekar, J.C. Baez & K. Krasnov. Quantum geometry of isolated horizons and black hole entropy, *Adv. Theor. Math. Phys.* **4**: 1–94, 2000, e–Print Archive: gr–qc/0005126

695. A. Ashtekar, A. Corichi & K. Krasnov. Isolated horizons: The classical phase space. *Adv. Theor. Math. Phys.* **3**:419–478, 2000 e–Print Archive: gr–qc/9905089

696. A. Ashtekar, D. Marolf, J. Mourao & T. Thiemann. Constructing hamiltonian quantum theories from path integrals in a diffeomorphism–invariant context. AEI–109, CGPG–99–5–1, 2000. 19pp. Published in *Class. Quan. Grav.* **17**:4919–4940, 2000. e–Print Archive: quant–ph/9904094

697. J.C. Baez. An Introduction to spin foam models of quantum gravity and BF theory. *Lect. Notes Phys.* **543**:25–94, 2000. [gr–qc/9905087]

698. J.W. Barrett & L. Crane. A Lorentzian signature model for quantum general relativity. *Class. Quan. Grav.* **17**:3101–3118, 2000. [gr–qc/9904025]

699. M. Bojowald. Abelian BF theory and spherically symmetric electromagnetism. *J. Math. Phys.* **41**:4313–4329, 2000. [hep–th/9908170]

700. M. Bojowald. Loop quantum cosmology. I. Kinematics. *Class. Quan. Grav.* **17**:1489–1508, 2000. [gr–qc/9910103]

701. M. Bojowald. Loop quantum cosmology. II. Volume operators. *Class. Quan. Grav.* **17**:1509–1526, 2000. [gr–qc/9910104]

702. M. Bojowald & H.A. Kastrup. Quantum symmetry reduction for diffeomorphism invariant theories of connections. *Class. Quan. Grav.* **17**:3009–3043, 2000. [hep–th/9907042]

703. G. Burgio, R. De Pietri, H.A. Morales–Tecotl, L.F. Urrutia, J.D. Vergara. The Basis of the physical Hilbert space of lattice gauge theories. *Nucl. Phys.* **B566**:547–561, 2000. [hep–lat/9906036]

704. O. Brodbeck and M. Zagermann, Dimensionally reduced gravity, Hermitian symmetric spaces and the Ashtekar variables *Class. Quan. Grav.* **17**:2749 (2000)

705. S. Chakraborty and N. Chakraborty, Quantum cosmology in Ashtekar variables, *Nuovo Cim.* **B115**:537 (2000).

706. R. De Pietri, L. Freidel, K. Krasnov & C. Rovelli. Barrett–Crane model from a Boulatov–Ooguri field theory over a homogeneous space. *Nucl. Phys.* **B574**:785–806, 2000. [hep–th/9907154]

707. C. Di Bartolo, R. Gambini, J. Griego & J. Pullin. Canonical quantum gravity in the Vassiliev invariants arena. 1. Kinematical structure. *Class. Quan. Grav.* **17**:3211–3238, 2000. [gr–qc/9911009]

708. C. Di Bartolo, R. Gambini, J. Griego & J. Pullin. Canonical quantum gravity in the Vassilev invariants arena. 2. Constraints, habitats and consistency of the constraint algebra. *Class. Quan. Grav.* **17**:3239–3264, 2000. [gr–qc/9911010]

709. C. Di Bartolo, R. Gambini, J. Griego & J. Pullin. Consistent canonical quantization of general relativity in the space of Vassilev knot invariants. *Phys. Rev. Lett.* **84**:2314–2317, 2000. [gr–qc/9909063]

710. C. Fleischhack, Stratification of the Generalized Gauge Orbit Space, *Commun. Math. Phys.* **214**, 607 (2000) [arXiv:math-ph/0001008].

711. C. Fleischhack, Gauge Orbit Types for Generalized Connections, *Commun. Math. Phys.* **214**, 607 (2000) [arXiv:math-ph/0001006].

712. C. Fleischhack, Hyphs and the Ashtekar-Lewandowski measure, arXiv:math-ph/0001007.

713. L. Freidel & K. Krasnov. Simple spin networks as Feynman graphs. *J. Math. Phys.* **41**:1681–1690, 2000. [hep–th/9903192]

714. R. Gambini & J. Pullin. The Large cosmological constant approximation to classical and quantum gravity: Model examples.*Class. Quan. Grav.* **17**:4515–4540, 2000. [gr–qc/0008032]

715. R. Gambini & J. Pullin. Making classical and quantum canonical general relativity computable through a power series expansion in the inverse cosmological constant. *Phys. Rev. Lett.* **85**:5272–5275, 2000. [gr–qc/0008031]

716. M. Gaul & C. Rovelli. Loop quantum gravity and the meaning of diffeomorphism invariance. *Lect. Notes Phys.* **541**:277–324, 2000. [gr–qc/9910079]

717. S. Kauffman & L. Smolin Combinatorial dynamics in quantum gravity. *Lect. Notes Phys.* **541**:101–129, 2000. [hep–th/9809161]

718. J. Lewandowski & A. Okolow. Two form gravity of the Lorentzian signature. *Class. Quan. Grav.* **17**:L47–L51, 2000. [gr–qc/9911121]

719. Y. Ling & L. Smolin Supersymmetric spin networks and quantum supergravity. *Phys. Rev.* **D61**:044008, 2000. [hep–th/9904016]

720. J. Louko & C. Rovelli. Refined algebraic quantization in the oscillator representation of SL(2, R). *J. Math. Phys.* **41**:132–155, 2000. [gr–qc/9907004]

721. Y. Ma and Y. Ling, Classical geometry from a physical state in canonical quantum gravity, *Phys. Rev.* **D62** (2000), 064030, gr-qc/0004070.

722. Y. Ma and Y. Ling, The Q-hat operator for canonical quantum gravity, *Phys. Rev.* **D62**, 104021 (2000) [arXiv:gr-qc/0005117].

723. S. A. Major, Quasilocal energy for spin-net gravity, *Class. Quan. Grav.* **17**, 1467 (2000). [arXiv:gr-qc/9906052].

724. A. P. Polychronakos, The area-entropy relation for black holes, *Prepared for Workshop on Current Developments in High-Energy Physics: HEP 2000, Ioannina, Greece, 20-23 Apr 2000*

725. T. Regge & R.M. Williams. Discrete structures in gravity. *J. Math. Phys.* **41**:3964–3984, 2000. [gr–qc/0012035]

726. C. Rovelli. The Century of the incomplete revolution: Searching for general relativistic quantum field theory. *J. Math. Phys.* **41**:3776–3800, 2000. [hep–th/9910131]

727. J. Samuel. Canonical gravity, diffeomorphisms and objective histories. *Class. Quan. Grav.* **17**:4645–4654, 2000. [gr–qc/0005094]

728. J. Samuel. Is Barbero's Hamiltonian formulation a gauge theory of Lorentzian gravity? *Class. Quan. Grav.* **17**:L141–L148, 2000. [gr–qc/0005095]

729. L. Smolin A Candidate for a background independent formulation of M theory. *Phys. Rev.* **D62**:086001, 2000. [hep–th/9903166]

730. L. Smolin A Holographic formulation of quantum general relativity. *Phys. Rev.* **D61**:084007, 2000. [hep–th/9808191]

731. L. Smolin. M theory as a matrix extension of Chern–Simons theory. *Nucl. Phys.* **B591**:227–242, 2000. [hep–th/0002009]

732. M. Tsuda, Generalized Lagrangian of N = 1 supergravity and its canonical constraints with the real Ashtekar variable," *Phys. Rev.* **D61**, 024025 (2000) [arXiv:gr-qc/9906057].

733. M. Tsuda and T. Shirafuji, The canonical formulation of N = 2 supergravity in terms of the Ashtekar variable," *Phys. Rev.* **D62**, 064020 (2000) [arXiv:gr-qc/0003010].

734. M. Varadarajan, Fock representations from U(1) holonomy algebras, *Phys. Rev.* **D61**, 104001 (2000), [arXiv:gr-qc/0001050].

735. M. Varadarajan & J.A. Zapata. A Proposal for analyzing the classical limit of kinematic loop gravity. *Class. Quan. Grav.* **17**:4085–4110, 2000. [gr–qc/0001040]

736. J. M. Velhinho, A groupoid approach to spaces of generalized connections, *J. Geom. Phys.* **41**, 166 (2002) [arXiv:hep-th/0011200].

737. G. Yoneda and H. a. Shinkai, Constructing hyperbolic systems in the Ashtekar formulation of general relativity," *Int. J. Mod. Phys.* **D9**, 13 (2000) [arXiv:gr-qc/9901053].

2001

738. A. Ashtekar & J. Lewandowski. Relation between polymer and Fock excitations. Jul 2001. 13pp. *Class. Quan. Grav.* **18**:L117–L128, 2001 e–Print Archive: gr–qc/0107043

739. J.C. Baez & J.W. Barrett. Integrability for relativistic spin networks. *Class. Quan. Grav.* **18**:4683–4700, 2001. [gr–qc/0101107]

740. M. Bojowald. The Semiclassical limit of loop quantum cosmology. *Class. Quan. Grav.* **18**:L109–L116, 2001. [gr–qc/0105113]

741. M. Bojowald. The Inverse scale factor in isotropic quantum geometry. *Phys. Rev.* **D64**:084018, 2001. [gr–qc/0105067]

742. M. Bojowald. Dynamical initial conditions in quantum cosmology. *Phys. Rev. Lett.* **87**:121301, 2001. [gr–qc/0104072]

743. M. Bojowald. Absence of singularity in loop quantum cosmology. *Phys. Rev. Lett.* **86**:5227–5230, 2001. [gr–qc/0102069]

744. M. Bojowald. Loop quantum cosmology. 4. Discrete time evolution. *Class. Quan. Grav.* **18**:1071–1088, 2001. [gr–qc/0008053]

745. M. Bojowald. Loop quantum cosmology. 3. Wheeler–Dewitt operators. *Class. Quan. Grav.* **18**:1055–1070, 2001. [gr–qc/0008052]

746. R. Capovilla, M. Montesinos, V.A. Prieto & E. Rojas. BF gravity and the Immirzi parameter. *Class. Quan. Grav.* **18**:L49–, 2001, Erratum–ibid.18: 1157, 2001. [gr–qc/0102073]

747. S. Carlip Quantum gravity: A Progress report. *Rept. Prog. Phys.* **64**:885, 2001. [gr–qc/0108040]

748. S. Chakraborty, Quantum cosmology with scalar-tensor theories in Ashtekar variables, *Nuovo Cim.* **116B**, 351 (2001).

749. A. Corichi & J.M. Reyes. A Gaussian weave for kinematical loop quantum gravity. *Int. J. Mod. Phys.* **D10**:325–338, 2001. [gr–qc/0006067]

750. L. Crane, A. Perez & C. Rovelli. Perturbative finiteness in spin–foam quantum gravity. *Phys. Rev. Lett.* **87**:181301, 2001.

751. C. Fleischhack, On the support of physical measures in gauge theories, arXiv:math-ph/0109030.

752. C. Fleischhack, On the structure of physical measures in gauge theories, arXiv:math-ph/0107022.

753. L. Freidel & D. Louapre. Diffeomorphisms and spin foam models. *Nucl. Phys.* **B662**:279–298, 2003. [gr–qc/0212001]

754. M. Gaul & C. Rovelli. A Generalized Hamiltonian constraint operator in loop quantum gravity and its simplest Euclidean matrix elements. *Class. Quan. Grav.* **18**:1593–1624, 2001. [gr–qc/0011106]

755. R. Linares, L.F. Urrutia & J.D. Vergara. Exact solution of the Schwinger model with compact U(1). *Mod. Phys. Lett.* **A16**:121–134, 2001. [hep–th/0103057]

756. Y. Ling & L. Smolin. Holographic formulation of quantum supergravity. *Phys. Rev.* **D63**:064010, 2001. [hep–th/0009018]

757. Y. Ling & L. Smolin. Eleven–dimensional supergravity as a constrained topological field theory. *Nucl. Phys.* **B601**:191–208, 2001. [hep–th/0003285]

758. S. A. Major and K. L. Setter, On the universality of the entropy-area relation, *Class. Quan. Grav.* **18**, 5293 (2001). [arXiv:gr-qc/0108034].

759. S. A. Major, New operators for spin net gravity: Definitions and consequences, arXiv:gr-qc/0101032.

760. S. A. Major and K. L. Setter, Gravitational statistical mechanics: A model, *Class. Quan. Grav.* **18**, 5125 (2001). [arXiv:gr-qc/0101031].

761. J. Makela & R.M. Williams. Constraints on area variables in Regge calculus. *Class. Quan. Grav.* **18**:L43–, 2001. [gr–qc/0011006]

762. A. Mikovic Quantum field theory of spin networks. *Class. Quan. Grav.* **18**:2827–2850, 2001. [gr–qc/0102110]

763. M. Montesinos & C. Rovelli. Statistical mechanics of generally covariant quantum theories: A Boltzmann – like approach. *Class. Quan. Grav.* **18**:555–569, 2001. [gr–qc/0002024]

764. M. Montesinos. Selfdual gravity with topological terms. *Class. Quan. Grav.* **18**:1847–1852, 2001. [gr–qc/0104068]

765. M. Montesinos & J.D. Vergara. Gauge invariance of complex general relativity. *Gen. Rel. Grav.* **33**:921–929, 2001. [gr–qc/0010113]

766. R. Oeckl & H. Pfeiffer. The Dual of pure nonAbelian lattice gauge theory as a spin foam model. *Nucl. Phys.* **B598**:400–426, 2001. [hep–th/0008095]

767. D. Oriti Space–time geometry from algebra: Spin foam models for nonperturbative quantum gravity. *Rept. Prog. Phys.* **64**:1489–1544, 2001. [gr–qc/0106091]

768. D. Oriti & R.M. Williams. Gluing 4 simplices: A Derivation of the Barrett–Crane spin foam model for Euclidean quantum gravity. *Phys. Rev.* **D63**:024022, 2001. [gr–qc/0010031]

769. A. Perez & C. Rovelli. 3+1 spinfoam model of quantum gravity with space – like and time – like components. *Phys. Rev.* **D64**:064002, 2001. [gr–qc/0011037]

770. A. Perez & C. Rovelli. A Spin foam model without bubble divergences. *Nucl. Phys.* **B599**:255–282, 2001. [gr–qc/0006107]

771. A. Perez & C. Rovelli. Spin foam model for Lorentzian general relativity. *Phys. Rev.* **D63**:041501, 2001. [gr–qc/0009021]

772. M.P. Reisenberger & C. Rovelli. Space–time as a Feynman diagram: The Connection formulation. *Class. Quan. Grav.* **18**:121–140, 2001. [gr–qc/0002095]

773. H. Sahlmann, T. Thiemann & O. Winkler. Coherent states for canonical quantum general relativity and the infinite tensor product extension. *Nucl. Phys.* **B606**:401–440, 2001. [gr–qc/0102038]

774. D.C. Salisbury. Quantum general invariance and loop gravity. *Found. Phys.* **31**:1105–1118, 2001. [gr–qc/0105097]

775. J. Samuel Comment on Holst's Lagrangian formulation. *Phys. Rev.* **D63**:068501, 2001.

776. J. Samuel. Comment on Immirzi parameter in quantum general relativity. *Phys. Rev.* **D64**:048501, 2001.

777. M. Sawaguchi, Canonical formalism of N=1 supergravity with the real Ashtekar variables, *Class. Quan. Grav.* **18**:1179 (2001).

778. T. Thiemann Gauge field theory coherent states (GCS): 1. General properties. *Class. Quan. Grav.* **18**:2025–2064, 2001. [hep–th/0005233]

779. T. Thiemann & O. Winkler. Gauge field theory coherent states (GCS). 2. Peakedness properties. *Class. Quan. Grav.* **18**:2561–2636, 2001. [hep–th/0005237]

780. T. Thiemann & O. Winkler. Gauge field theory coherent states (GCS): 3. Ehrenfest theorems. *Class. Quan. Grav.* **18**:4629–4682, 2001. [hep–th/0005234]

781. T. Thiemann & O. Winkler. Gauge field theory coherent states (GCS) 4: Infinite tensor product and thermodynamical limit. *Class. Quan. Grav.* **18**:4997–5054, 2001. [hep–th/0005235]

782. T. Thiemann Quantum spin dynamics (QSD): 7. Symplectic structures and continuum lattice formulations of gauge field theories. *Class. Quan. Grav.* **18**:3293–3338, 2001. [hep–th/0005232]

783. M. Varadarajan, Photons from quantized electric flux representations, *Phys. Rev.* **D64**, 104003 (2001), [arXiv:gr-qc/0104051].

784. Y. B. Wu and Y. X. Gui, The double coupling of the Ashtekar gravitational field to the Dirac spinoral fields, *Chin. Phys.* **10**, 902 (2001).

785. R. E. Zimmermann, Classicity from Entangled Ensemble States of Knotted Spin Networks. A Conceptual Approach, Cf. A. Fokas et al. (eds.), Congress Proceedings, International Press, Boston, 2001, 468 sq. arXiv:gr-qc/0007024.

2002

786. S. Alexandrov. Hilbert space structure of covariant loop quantum gravity. *Phys. Rev.* **D66**:024028, 2002. [gr–qc/0201087]

787. S. Alexandrov. On choice of connection in loop quantum gravity. *Phys. Rev.* **D65**:024011, 2002. [gr–qc/0107071]

788. J. Alfaro, H.A. Morales–Tecotl & L.F. Urrutia. Loop quantum gravity and light propagation. *Phys. Rev.* **D65**:103509, 2002. [hep–th/0108061]

789. J. Alfaro, H.A. Morales–Tecotl & L.F. Urrutia. Quantum gravity and spin 1/2 particles effective dynamics. *Phys. Rev.* **D66**:124006, 2002. [hep–th/0208192]

790. J. Alfaro & G. Palma. Loop quantum gravity corrections and cosmic rays decays. *Phys. Rev.* **D65**:103516, 2002. [hep–th/0111176]

791. A. Ashtekar. Addressing challenges of quantum gravity through quantum geometry: black holes and big–bang. Prepared for International Conference on Theoretical Physics (TH 2002), Paris, France, 22– 26 Jul 2002. *Annales Henri Poincare* **4**:S55–S69, 2003

792. A. Ashtekar, S. Fairhurst & J.L. Willis. Quantum gravity, shadow states, and quantum mechanics. CGPG–02–7–2, Jul 2002. 35pp. *Class. Quan. Grav.* **20**:1031–1062, 2003 e–Print Archive: gr–qc/0207106

793. A. Ashtekar, J. Lewandowski & H. Sahlmann. Polymer and fock representations for a scalar field. ESI–1233, CGPG–02–11–1, Nov 2002. 13pp. *Class. Quan. Grav.* **20**:L11–1, 2003 e–Print Archive: gr–qc/0211012

794. J.C. Baez, J.D. Christensen & G. Egan. Asymptotics of 10j symbols. *Class. Quan. Grav.* **19**:6489, 2002. [gr–qc/0208010]

795. J.C. Baez, J.D. Christensen, T.R. Halford & D.C. Tsang. Spin foam models of Riemannian quantum gravity. *Class. Quan. Grav.* **19**:4627–4648, 2002. [gr–qc/0202017]

796. J.C. Baez & J.D. Christensen. Positivity of spin foam amplitudes. *Class. Quan. Grav.* **19**:2291–2306, 2002. [gr–qc/0110044]

797. M. Bojowald & F. Hinterleitner. Isotropic loop quantum cosmology with matter. *Phys. Rev.* **D66**:104003, 2002. [gr–qc/0207038]

798. M. Bojowald. Inflation from quantum geometry. *Phys. Rev. Lett.* **89**:261301, 2002, [gr–qc/0206054]

799. M. Bojowald Isotropic loop quantum cosmology. *Class. Quan. Grav.* **19**:2717–2742, 2002. [gr–qc/0202077]

800. M. Bojowald Quantization ambiguities in isotropic quantum geometry. *Class. Quan. Grav.* **19**:5113–5230, 2002. [gr–qc/0206053]

801. L. Bombelli, Statistical geometry of random weave states, in *Proceedings of the Ninth Marcel Grossmann Meeting on General Relativity*, eds V G Gurzadyan, R T Jantzen and R Ruffini, World Scientific 2002. arXiv: gr-qc/0101080.

802. S. Chakraborty, Quantum cosmology in Ashtekar variables with non-minimally coupled scalar-tensor theory, *Pramana* **58**:1 (2002).

803. J.D. Christensen & G. Egan. G An Efficient algorithm for the Riemannian 10j symbols. *Class. Quan. Grav.* **19**:1185–1194, 2002. [gr–qc/0110045]

804. R. De Pietri, L. Lusanna, L. Martucci & S. Russo. Dirac's observables for the rest frame instant form of tetrad gravity in a completely fixed 3 orthogonal gauge. *Gen. Rel. Grav.* **34**:877–1033, 2002. [gr–qc/0105084]

805. C. Di Bartolo, R. Gambini & J. Pullin. Canonical quantization of constrained theories on discrete space–time lattices. *Class. Quan. Grav.* **19**:5275–5296, 2002. [gr–qc/0205123]

806. L. Freidel & K. Krasnov. The Fuzzy sphere star product and spin networks. *J. Math. Phys.* **43**:1737–1754, 2002. [hep–th/0103070]

807. R. Gambini & J. Pullin. A Finite spin foam–based theory of three–dimensional and four–dimensional quantum gravity. *Phys. Rev.* **D66**:024020, 2002. [gr–qc/0111089]

808. L. J. Garay and G. A. Mena Marugan, Immirzi ambiguity in the kinematics of quantum general relativity, *Phys. Rev.* **D66**, 024021 (2002) [arXiv:gr-qc/0205021].

809. A.M. Gavrilik. Applying the q algebras U'(q) (so(n)) to quantum gravity: Towards q–deformed analog of SO(n) spin networks. *Ukr. J. Phys.* **47**:213–218, 2002. [gr–qc/0401067]

810. F. Girelli, R. Oeckl & A. Perez. Spin foam diagrammatics and topological invariance. *Class. Quan. Grav.* **19**:1093–1108, 2002. [gr–qc/0111022]

811. V. Husain. Naked singularities and the Wilson loop. *Mod. Phys. Lett.* **A17**:955–966, 2002. [hep–th/0204180]

812. I.B. Khriplovich. Entropy and area of black holes in loop quantum gravity. *Mod. Phys. Lett.* **B537**:125–129, 2002. [gr–qc/0109092]

813. P. Kramer & M. Lorente. Surface embedding, topology and dualization for spin networks. *J. Phys.* **A35**:8563–8574, 2002. [gr–qc/0401107]

814. R.E. Livine & D. Oriti. Barrett–Crane spin foam model from generalized BF type action for gravity. *Phys. Rev.* **D65**:044025, 2002. [gr–qc/0104043] "

815. E.R. Livine. Projected spin networks for Lorentz connection: Linking spin foams and loop gravity. *Class. Quan. Grav.* **19**:5525–5542, 2002. [gr–qc/0207084]

816. Y. Ma, Quantization of static spacetimes, *Phys. Rev.* **D65** (2002), 064012. [gr-qc/0108004].

817. S. A. Major and M. D. Seifert, Modelling space with an atom of quantum geometry," *Class. Quan. Grav.* **19**, 2211 (2002). [arXiv:gr-qc/0109056].

818. T. J. Konopka and S. A. Major, Observational limits on quantum geometry effects, New J. Phys. **4**, 57 (2002). [arXiv:hep-ph/0201184].

819. A. Mikovic & R. Picken. Super Chern Simons theory and flat super connections on a torus. *Adv. Theor. Math. Phys.* **5**:243–263, 2002. [math–ph/0008006]

820. A. Mikovic. Spin foam models of matter coupled to gravity. *Class. Quan. Grav.* **19**:2335–2354, 2002. [hep–th/0108099]

821. G. A. Mena Marugan, Extent of the Immirzi ambiguity in quantum general relativity, *Class. Quan. Grav.* **19**, L63 (2002) [arXiv:gr-qc/0203027].

822. R. Oeckl The Quantum geometry of supersymmetry and the generalized group extension problem. *J. Geom. Phys.* **44**:299–330, 2002. [hep–th/0106122]

823. D. Oriti Boundary terms in the Barrett–Crane spin foam model and consistent gluing. *Mod. Phys. Lett.* **B532**:363–372, 2002. [gr–qc/0201077]

824. D. Oriti & H. Pfeiffer. A Spin foam model for pure gauge theory coupled to quantum gravity. *Phys. Rev.* **D66**:124010, 2002. [gr–qc/0207041]

825. A. Perez Spin foam quantization of SO(4) Plebanski's action. *Adv. Theor. Math. Phys.* **5**:947–968, 2002, Erratum–ibid.6: 593–595, 2003. [gr–qc/0203058]

826. M. Reisenberger & C. Rovelli. Space–time states and covariant quantum theory. *Phys. Rev.* **D65**:125016, 2002. [gr–qc/0111016]

827. C. Rovelli. Partial observables. *Phys. Rev.* **D65**:124013, 2002. [gr–qc/0110035]

828. D. Sudarsky, L. Urrutia, H. Vucetich. New observational bounds to quantum gravity signals. *Phys. Rev. Lett.* **89**:231301, 2002. [gr–qc/0204027]

829. L.F. Urrutia. Quantum gravity corrections to particle interactions. *Mod. Phys. Lett.* **A17**:943–954, 2002. [gr–qc/0205103]

830. M. Varadarajan, Gravitons from a loop representation of linearised gravity, *Phys. Rev.* **D66**, 024017 (2002), [arXiv:gr-qc/0204067].

831. J. M. Velhinho, Invariance properties of induced Fock measures for U(1) holonomies, *Commun. Math. Phys.* **227**, 541 (2002) [arXiv:math-ph/0107002].

832. J. M. Velhinho, A groupoid approach to spaces of generalized connections, J. Geom. Phys. **41**, 166 (2002) [arXiv:hep-th/0011200].

833. J. M. Velhinho, Some properties of generalized connections in quantum gravity, in *Proceedings of the MGIX MM Meeting* (Volume 2) The University of Rome "La Sapienza", 28 July 2000, edited by Vahe G Gurzadyan (Yerevan Physics Institute, Armenia), Robert T Jantzen (Villanova University, USA) & Remo Ruffini (University of Rome "La Sapienza", Italy) p 1278, 2002. arXiv:hep-th/0101141.

834. J.A. Zapata. Continuum spin foam model for 3–d gravity. *J. Math. Phys.* **43**:5612–5623, 2002. [gr–qc/0205037]

2003

835. A. Alekseev, A. P. Polychronakos and M. Smedback, On area and entropy of a black hole, *Phys. Lett.* **B574**, 296 (2003) [arXiv:hep-th/0004036].

836. S. Alexandrov & E.R. Livine. SU(2) loop quantum gravity seen from covariant theory. *Phys. Rev.* **D67**:044009, 2003. [gr–qc/0209105]

837. J. Alfaro, H.A. Morales–Tecotl, M. Reyes & L.F. Urrutia. On nonAbelian holonomies. *J. Phys.* **A36**:12097–12107, 2003. [hep–th/0304223]

838. J. Alfaro & G. Palma. Loop quantum gravity and ultrahigh–energy cosmic rays. *Phys. Rev.* **D67**:083003, 2003. [hep–th/0208193]

839. A. Ashtekar, M. Bojowald & J. Lewandowski. Mathematical structure of loop quantum cosmology. *Adv. Theor. Math. Phys.* **7**:233–268, 2003. [gr–qc/0304074]

840. A. Ashtekar & A. Corichi. Nonminimal couplings, quantum geometry and black hole entropy. *Class. Quan. Grav.* **20**:4473–4484, 2003. [gr–qc/0305082]

841. A. Ashtekar, J. Lewandowski & H. Sahlmann. Polymer and Fock representations for a scalar field. *Class. Quan. Grav.* **20**:L11–1, 2003. [gr–qc/0211012]

842. A. Ashtekar, J. Wisniewski & O. Dreyer. Isolated horizons in (2+1) gravity. *Adv. Theor. Math. Phys.* **6**:507–555, 2003. [gr–qc/0206024]

843. J. Baez. Quantum gravity: The quantum of area? *Nature* **421**:702–703, 2003.

844. J.W. Barrett. Geometrical measurements in three–dimensional quantum gravity. *Int. J. Mod. Phys.* **A18S2**:97–113, 2003. [gr–qc/0203018]

845. J.W. Barrett & C. M. Steele. Asymptotics of relativistic spin networks. *Class. Quan. Grav.* **20**:1341–1362, 2003. [gr–qc/0209023]

846. M. Bojowald Homogeneous loop quantum cosmology. *Class. Quan. Grav.* **20**:2595–2615, 2003. [gr–qc/0303073]

847. M. Bojowald Initial conditions for a universe. *Gen. Rel. Grav.* **35**:1877–1883, 2003. [gr–qc/0305069]

848. M. Bojowald & K. Vandersloot. Loop quantum cosmology, boundary proposals, and inflation. *Phys. Rev.* **D67**:124023, 2003. [gr–qc/0303072]

849. D. Colosi & C. Rovelli, A simple background-independent Hamiltonian quantum model, *Phys. Rev.* **D68**, 104008 (2003) [arXiv:gr-qc/0306059].

850. A. Corichi, J. Cortez & H. Quevedo. Note on canonical quantization and unitary (in) equivalence in field theory. *Class. Quan. Grav.* **20**:L83, 2003. [gr–qc/0212023]

851. A. Corichi. On quasinormal modes, black hole entropy, and quantum geometry. *Phys. Rev.* **D67**, 087502, 2003. [gr–qc/0212126]

852. O. Dreyer. New hints from general relativity. *Int. J. Mod. Phys.* **D12**, 1763, 2003. [gr–qc/0401035]

853. O. Dreyer. Quasinormal modes, the area spectrum, and black hole entropy. *Phys. Rev. Lett.* **90**:081301, 2003. [gr–qc/0211076]

854. C. Fleischhack, On the Gribov problem for generalized connections, Commun. Math. Phys. **234**, 423 (2003) [arXiv:math-ph/0007001].

855. L. Freidel, E.R. Livine & C. Rovelli. Spectra of length and area in (2+1) Lorentzian loop quantum gravity. *Class. Quan. Grav.* **20**:1463–1478, 2003. [gr–qc/0212077]

856. L. Freidel & E.R. Livine. Spin networks for noncompact groups. *J. Math. Phys.* **44**:1322–1356, 2003. [hep–th/0205268]

857. L. Freidel & D. Louapre. Asymptotics of 6j and 10j symbols. *Class. Quan. Grav.* **20**:1267–1294, 2003. [hep–th/0209134]

858. L. Freidel & D. Louapre. Nonperturbative summation over 3–D discrete topologies. *Phys. Rev.* **D68**:104004, 2003. [hep–th/0211026]

859. R. Gambini & J. Pullin. Canonical quantization of general relativity in discrete space–times. *Phys. Rev. Lett.* **90**:021301, 2003. [gr–qc/0206055]

860. R. Gambini & J. Pullin. Discrete quantum gravity: A Mechanism for selecting the value of fundamental constants. *Int. J. Mod. Phys.* **D12**:1775–1782, 2003. [gr–qc/0306095]

861. R. Gambini & J. Pullin. Discrete quantum gravity: Applications to cosmology. *Class. Quan. Grav.* **20**:3341, 2003. [gr–qc/0212033]

862. L. J. Garay and G. A. Mena Marugan, Immirzi ambiguity, boosts and conformal frames for black holes, Class. Quant. Grav. **20**, L115 (2003). [gr-qc/0304055].

863. F. Hinterleitner and S. Major, Isotropic loop quantum cosmology with matter. II: The Lorentzian constraint, *Phys. Rev.* **D68**, 124023, 2003. [arXiv:gr-qc/0309035].

864. K. Krasnov. Black hole thermodynamics and Riemann surfaces. *Class. Quan. Grav.* **20**:2235–2250, 2003. [gr–qc/0302073]

865. G. Lambiase. Cerenkov's effect and neutrino oscillations in loop quantum gravity. *Mod. Phys. Lett.* **A18**:23–30, 2003. [gr–qc/0301058]

866. G. Lambiase. MSW effect in loop quantum gravity and constraints on parameters from neutrino antineutrino transitions. *Mod. Phys. Lett.* **A18**:1397–1401, 2003.

867. G. Lambiase. Spin flavor conversion of neutrinos in loop quantum gravity. *Class. Quan. Grav.* **20**:4213–4220, 2003. [gr–qc/0302053]

868. G. Lambiase & P. Singh. Matter antimatter asymmetry generated by loop quantum gravity. *Mod. Phys. Lett.* **B565**:27–32, 2003. [gr–qc/0304051]

869. Y. Ling and H. b. Zhang, Quasinormal modes prefer supersymmetry?, *Phys. Rev.* **D68**, 101501 (2003) [arXiv:gr-qc/0309018].

870. E.R. Livine & D. Oriti. Implementing causality in the spin foam quantum geometry. *Nucl. Phys.* **B663**:231–279, 2003. [gr–qc/0210064]

871. E.R. Livine, A. Perez & C. Rovelli. 2D manifold–independent spinfoam theory. *Class. Quan. Grav.* **20**:4425–4445, 2003.

872. A. Mikovic. Quantum field theory of open spin networks and new spin foam models. *Int. J. Mod. Phys.* **A18S2**:83–96, 2003. [gr–qc/0202026]

873. A. Mikovic. Quantum gravity vacuum and invariants of embedded spin networks. *Class. Quan. Grav.* **20**:3483–3492, 2003. [gr–qc/0301047]

874. A. Mikovic. Spin foam models of Yang–Mills theory coupled to gravity. *Class. Quan. Grav.* **20**:239–246, 2003. [gr–qc/0210051]

875. M. Montesinos. Noether currents for BF gravity. *Class. Quan. Grav.* **20**:3569–3575, 2003.

876. K. Noui. & P. Roche. Cosmological deformation of Lorentzian spin foam models. *Class. Quan. Grav.* **20**:3175–3214, 2003. [gr–qc/0211109]

877. R. Oeckl. A 'General boundary' formulation for quantum mechanics and quantum gravity. *Mod. Phys. Lett.* **B575**:318–324, 2003. [hep–th/0306025]

878. R. Oeckl. Generalized lattice gauge theory, spin foams and state sum invariants. *J. Geom. Phys.* **46**:308–354, 2003. [hep–th/0110259]

879. R. Oeckl. Renormalization of discrete models without background. *Nucl. Phys.* **B657**:107–138, 2003. [gr–qc/0212047]

880. R. Oeckl. Schroedinger's cat and the clock: Lessons for quantum gravity. *Class. Quan. Grav.* **20**:5371–5380, 2003. [gr–qc/0306007]

881. A. Okolow & J. Lewandowski. Diffeomorphism covariant representations of the holonomy flux *algebra. *Class. Quan. Grav.* **20**:3543–3568, 2003. [gr–qc/0302059]

882. A. Perez. Spin foam models for quantum gravity. *Class. Quan. Grav.* **20**:R43, 2003. [gr–qc/0301113]

883. J. Pullin, Canonical quantization of general relativity: The last 18 years in a nutshell *AIP Conf. Proc.* **668** 141 (2003) (*Preprint* gr-qc/0209008)

884. C. Rovelli. Loop quantum gravity, *Phys. World* **16N11**:37–41, 2003.

885. C. Rovelli, A dialog on quantum gravity, *Int. J. Mod. Phys. D* **12**, 1509 (2003). (*Preprint* hep-th/0310077)

886. C. Rovelli & S. Speziale. Reconcile Planck scale discreteness and the Lorentz–Fitzgerald contraction. *Phys. Rev.* **D67**:064019, 2003. [gr–qc/0205108]

887. L. Shao, H. Noda, D. Shao and C. G. Shao, The curvature excitation of quantum Wilson loop in (R + R**2) gravity, *Gen. Rel. Grav.* **35**:527 (2003).

888. L. Smolin and A. Starodubtsev, General relativity with a topological phase: An action principle, arXiv:hep-th/0311163.

889. J. Swain. The Pauli exclusion principle and SU(2) versus SO(3) in loop quantum gravity. *Int. J. Mod. Phys.* **D12**:1729–1736, 2003. [gr–qc/0305073]

890. T. Thiemann. Lectures on loop quantum gravity. *Lect. Notes Phys.* **631**:41–135, 2003. [gr–qc/0210094]

891. L. F. Urrutia, Loop quantum gravity induced modifications to particle dynamics, *AIP Conf. Proc.* **670**:289 (2003) [arXiv:hep-ph/0303189].

Preprints older than 12 months

892. P. Aichelburg and A. Ashtekar. Mathematical Problems of Quantum Gravity. Abstracts of seminars given at the *Quantum Gravity Workshop at the Erwin Schrodinger Institute, Viena.* arXiv: gr-qc/9701042.

893. S. Alexander, L. Crane and M. D. Sheppeard, The geometrization of matter proposal in the Barrett-Crane model and resolution of cosmological problems, arXiv:gr-qc/0306079.

894. G. Amelino–Camelia, On the fate of Lorentz symmetry in loop quantum gravity and noncommutative spacetimes, arXiv:gr-qc/0205125.

895. M. Arnsdorf, Approximating connections in loop quantum gravity, arXiv:gr-qc/9910084.

896. M. Arnsdorf, Loop quantum gravity and asymptotically flat spaces, arXiv:gr-qc/0008038.

897. J. M. Aroca, H. Fort and R. Gambini Path Integral for Lattice Staggered Fermions in the Loop Representation. hep-lat/9607050.

898. H. Baumgartel, On a theorem of Ashtekar and Lewandowski in the mathematical framework of canonical quantization in quantum gravity," *Prepared for Conference on New Insights in Quantum Mechanics, Goslar, Germany, 31 Aug - 3 Sep 1998*

899. C. Beetle and A. Corichi, Bibliography of publications related to classical and quantum gravity in terms of connection and loop variables, arXiv:gr-qc/9703044.

900. I. Bengtsson. Ashtekar's variables and the cosmological constant. Goteborg preprint, 1991.

901. I. Bengtsson. Curvature tensors in an exact solution of Capovilla's equations. Goteborg-91-5 (February 1991).

902. I. Bengtsson. Form connections. gr-qc/9305004

903. I. Bengtsson. Form Geometry and the 't Hooft-Plebanski action. gr-qc/950210

904. M. Bojowald, Angular momentum in loop quantum gravity, arXiv:gr-qc/0008054.

905. M. Bojowald and A. Perez. SPin foam quantization and anomalies, arXiv:gr-qc/0303026.

906. Ola Boström. Some new results about the cosmological constants. Göteborg preprint ITP91-34

907. O. Boström, M. Miller and L. Smolin. A new discretization of classical and quantum general relativity. Göteborg ITP 94-5, SU-GP-93-4-1, CGPG-94/3-3, gr-qc/9304005.

908. R. Brooks. Diff(Σ) and metrics from Hamiltonian-TQFT. MIT preprint CTPH2175

909. Greorgy Burnett, Joseph D. Romano, and Ranjeet S. Tate. Polynomial coupling of matter to gravity using Ashtekar variables. Syracuse preprint.

910. Steven Carlip. 2+1 dimensional quantum gravity and the Braid group. Talk given at the Workshop on Physics, Braids and Links, Banff Summer School in Theoretical Physics, August 1989.

911. L. Crane. Categorical physics. Preprint ???.

912. L. Crane and D. Yetter, A more sensitive Lorentzian state sum, arXiv:gr-qc/0301017.

913. A. Dasgupta, Counting the apparent horizon, arXiv:hep-th/0310069.

914. A. Doring and H. F. de Groote, The kinematical frame of loop quantum gravity. I, arXiv:gr-qc/0112072.

915. R. Floreanini, R. Percacci and E. Spallucci. Why is the metric non-degenerate? SISSA 132/90/EP preprint (October 1990). Proceedings of the 6-th Marcel Grossmann Meeting, Kyoto 1991, p. 323-325

916. R. Gambini, and L. Leal. Loop space coordinates, linear representations of the diffeomorphism group and knot invariants.

917. J. M. Garcia–Islas, Spin foam models of n-dimensional quantum gravity, and non-archimedean and non-commutative formulations, arXiv:gr-qc/0401058.

918. J. Griego. On the Extended Loop Calculus. gr-qc/9512011.

919. B. Grossmann. General relativity and a non-topological phase of topological Yang-Mills theory. Inst. for Advanced Studies, Princeton, 1990 preprint.

920. Y. Hashimoto, Y. Yasui, S. Miyagi, T. Otsuka. Applications of the Ashtekar gravity to four dimensional hyper-Kähler geometry and Yang-Mills instantons. hep-th/9610069.

921. G. Helesfai and G. Bene, A numerical study of spectral properties of the area operator in loop quantum gravity, arXiv:gr-qc/0306124.

922. W. Kalau. Ashtekar formalism with real variables. U. Of Wuppertal NIKHEF-H/91-03 Amsterdam preprint (December 1990).

923. K. Kamimura and T. Fukuyama. Massive analogue of Ashtekar-CDJ action. gr-qc/9208010

924. V. Khatsymovsky. On polynomial variables in general relativity. BINP 93-41, gr-qc/9310005.

925. S. Koshti and N. Dadhich. Gravitational instantons with matter sources using Ashtekar variables. Inter Univ. Centre for Astron. and Astrophysics, Pune, India. June 1990 preprint.

926. Sucheta Koshti and Naresh Dadhich. The General Self-dual solution of the Einstein Equations. IUCAA 94/29, gr-qc/9409046.

927. R. Loll. An example of loop quantization. CGPG-94/7-2.

928. R. Loll. Chromodynamics and gravity as theories on loop space. CGPG-93/9-1, hep-th/9309056.

929. R. Loll. Latticing quantum gravity. Contributed to 2nd meeting on constrained dynamics and quantum gravity, Santa Margherita, Italy, Sep 1996. gr-qc/9701007

930. R. Loll. Quantizing canonical gravity in the real domain. gr-qc/9701031.

931. A.M.R. Magnon. Self duality and CP violation in gravity. Univ. Blaise Pascal (France) preprint (1990).

932. S. Major and L. Smolin. Mixmaster Quantum Cosmology in Terms of Physical Dynamics. gr-qc/9607020.

933. J. Maluf. Fermi coordinates and reference frames in the ECSK theory. SU-GP-92/1-2

934. S. K. Maran, Spin foam models of gravity and BF theory as evolution of spin networks, arXiv:gr-qc/0310123.

935. S. K. Maran, Ashtekar formulation with temporal foliations, arXiv:gr-qc/0312111.

936. L. J. Mason and Jörg Frauendiener. The Sparling 3-form, Ashtekar variables and quasi-local mass, in *Twistors in mathematics and physics*, eds R.Baston & T.Bailey, Cambridge U. Press, p.189-217 (1989)

937. P. Mora, A note in cosmology and loop quantum gravity, arXiv:gr-qc/0008048.

938. O. Moritsch, M. Schweda, T. Sommer, L. Tataru and H. Zerrouk. BRST cohomology of Yang–Mills gauge fields in the presence of gravity in Ashtekar variables. TUW 94-17, hep-th/9409081.

939. N. O'Murchadha and M. Vandyck. Gravitational degrees of freedom in Ashtekar's formulation of General Relativity. Univ. of Cork preprint - 1990

940. P. L. Paul. Topological Symmetries of twisted N=2 chiral supergravity in Ashtekar formalism. hep-th/9504144.

941. M. Rainer, Is loop quantum gravity a QFT?, arXiv:gr-qc/9912011.

942. J. Rasmussen and M. Weis. Induced Topology on the hoop group. NBI-HE-94-46, hep-th/9410194.

943. M. Reisenberger, C. Rovelli: "Spinfoams as Feynman diagrams", gr-qc/ 0002083.

944. C. Rovelli and L. Smolin. Finiteness of diffeomorphism invariant operators in nonperturbative quantum gravity. Syracuse University preprint SU-GP-91/8-1, August 1991.

945. Carlo Rovelli and Lee Smolin. Loop representation for lattice gauge theory. 1990 Pittsburgh and Syracuse preprint.

946. C. Rovelli and P. Upadhya, Loop quantum gravity and quanta of space: A primer, arXiv:gr-qc/9806079.

947. M.P. Ryan, Jr. Cosmological "ground state" wave functions in gravity and electromagnetism. in *Proceedings of VIIth Marcel Grossman Meeting on General Relativity, 1994* gr-qc/9312024

948. H. Sahlmann, Some comments on the representation theory of the algebra underlying loop quantum gravity, arXiv:gr-qc/0207111.

949. H. Sahlmann, When do measures on the space of connections support the triad operators of loop quantum gravity?, arXiv:gr-qc/0207112.

950. J. Schirmer. Triad formulations of canonical gravity without a fixed reference frame. gr-qc/9503037.

951. L. Smolin. Fermions and topology. GCPG-93/9-4, gr-qc/9404010.

952. L. Smolin. The classical limit and the form of the Hamiltonian constraint in nonperturbative quantum general relativity. gr-qc/9609034.

953. Lee Smolin. The Problem of Quantum Gravity: a status report (Address to the AAAS meeting, Washington D.C., February 1991). Syracuse preprint SU-GP-91/2-1.

954. L. Smolin. Three dimensional strings a collective coordinates of four-dimensional nonperturbative quantum gravity. gr-qc/9609031.

955. L. Smolin, How far are we from the quantum theory of gravity? `Preprint` hep-th/0303185.

956. L. Smolin and M. Varadarajan. Degenerate solutions and the instability of the perturbative vacuum in nonperturbative formulations of quantum gravity. Syracuse University preprint SU-GP-91/8-3, August 1991.

957. A. Starodubtsev, String theory in a vertex operator representation: A simple model for testing loop quantum gravity, arXiv:gr-qc/0201089.

958. T. Thiemann, Introduction to modern canonical quantum general relativity, *Preprint* gr-qc/0110034

959. T. Thiemann, The LQG string: Loop quantum gravity quantization of string theory. I: Flat target space, arXiv:hep-th/0401172.

960. T. Thiemann, The Phoenix project: Master constraint programme for loop quantum gravity, arXiv:gr-qc/0305080.

961. M. Tsuda. Consistency of matter field equations in Ashtekar formulation. gr-qc/9602022.

962. M. Tsuda. General considerations of matter coupling with selfdual connection. gr-qc/9505019.

963. M. Tsuda, T. Shirafuji and H.-J. K Xie. Ashtekar Variables and Matter Coupling. STUPP-95-138, gr-qc/9501021.

964. M. Tsuda, T. Shirafuji and H. J. Xie, Ashtekar variables and matter coupling, arXiv:gr-qc/9501021.

965. M. Tsuda and T. Shirafuji. Consistency of matter field equations in Ashtekar formulation. gr-qc/9602022.

966. T. Tsushima, The expectation value of the metric operator with respect to Gaussian weave state in loop quantum gravity, arXiv:gr-qc/0212117.

967. L. F. Urrutia, Flat space modified particle dynamics induced by loop quantum gravity, arXiv:hep-ph/0402271.

968. L. F. Urrutia, Loop quantum gravity induced corrections to fermion dynamics in flat space, arXiv:hep-ph/0402004.

969. L.F. Urrutia. Towards a Loop Representation of Connection Theories Defined Over a Super-Lie Algebra. hep-th/9609010.

970. R. E. Zimmermann, Loops and knots as topoi of substance: Spinoza revisited, arXiv:gr-qc/0004077.

971. R. E. Zimmermann, Recent conceptual consequences of loop quantum gravity. Part I: Foundational aspects, arXiv:physics/0107061.

972. R. E. Zimmermann, Recent conceptual consequences of loop quantum gravity. II: Holistic aspects, arXiv:physics/0107081.

973. R. E. Zimmermann, Recent conceptual consequences of loop quantum gravity. III: A postscript on time, arXiv:physics/0108026.

2004

974. S. Alexander, J. Malecki and L. Smolin, Quantum gravity and inflation, *Phys. Rev.* **D70**, 044025 (2004), [arXiv:hep-th/0309045].

975. S.Y. Aleksandrov. Lorentz–covariant loop quantum gravity. *Theor. Math. Phys.* **139**:751–765, 2004, *Theor. Math. Fiz.* **139**:363–380, 2004.

976. J. Alfaro, M. Reyes, H. A. Morales-Tecotl and L. F. Urrutia, On alternative approaches to Lorentz violation in loop quantum gravity inspired models, *Phys. Rev.* **D70**:084002 (2004) [arXiv:gr-qc/0404113].

977. G. Amelino-Camelia, M. Arzano and A. Procaccini, Severe constraints on loop-quantum-gravity energy-momentum dispersion relation from black-hole area-entropy law, *Phys. Rev.* **D70**:107501 (2004)

978. G. Amelino-Camelia, L. Smolin and A. Starodubtsev, Quantum symmetry, the cosmological constant and Planck scale phenomenology, *Class. Quan. Grav.* **21**, 3095 (2004), [arXiv:hep-th/0306134].

979. A. Ashtekar & J. Lewandowski. Background independent quantum gravity: A Status report. *Class. Quan. Grav.* **21**:R53, 2004. [gr–qc/0404018]

980. M. Bojowald. Spherically Symmetric Quantum Geometry: States and Basic Operators, *Class. Quan. Grav.* **21**, 3733–3753 (2004).

981. M. Bojowald. Quantum Gravity and the Big Bang, in *Where Cosmology and Fundamental Physics Meet*, Le Brun, V. and Basa, S. and Mazure, A. Eds., IUFM, Marseille, Frontier Group, 2004, Pp. 54–58. ArXiv:astro-ph/0309478

982. M. Bojowald. Loop Quantum Cosmology: Recent Progress, in Proceedings of the International Conference on Gravitation and Cosmology (ICGC 2004), Cochin, India. *Pramana* **63**, 765–776 (2004). [gr-qc/0402053].

983. M. Bojowald, G. Date & G.M. Hossain. The Bianchi IX model in loop quantum cosmology. *Class. Quan. Grav.* **21**:3541–3570, 2004. [gr–qc/0404039]

984. M. Bojowald & G. Date. Consistency conditions for fundamentally discrete theories. *Class. Quan. Grav.* **21**:121–143, 2004. [gr–qc/0307083]

985. M. Bojowald & G. Date. Quantum suppression of the generic chaotic behavior close to cosmological singularities. *Phys. Rev. Lett.* **92**:071302, 2004. [gr–qc/0311003]

986. M. Bojowald, G. Date & K. Vandersloot. Homogeneous loop quantum cosmology: The Role of the spin connection. *Class. Quan. Grav.* **21**:1253–1278, 2004. [gr–qc/0311004]

987. M. Bojowald, R. Maartens & P. Singh. Loop quantum gravity and the cyclic universe. *Phys. Rev.* **D70**:083517, 2004. [hep–th/0407115]

988. M. Bojowald & H.A. Morales–Tecotl. Cosmological applications of loop quantum gravity. *Lect. Notes Phys.* **646**:421–462, 2004. [gr–qc/0306008]

989. M. Bojowald, J.E. Lidsey, D.J. Mulryne, P. Singh & R. Tavakol. Inflationary cosmology and quantization ambiguities in semiclassical loop quantum gravity. *Phys. Rev.* **D70**:043530, 2004. [gr–qc/0403106]

990. M. Bojowald, P. Singh and A. Skirzewski, Time dependence in quantum gravity, *Phys. Rev.* **D70**, 124022 (2004) [arXiv:gr-qc/0408094].

991. M. Bojowald, and A. Skirzewski. The Volume Operator in Spherically Symmetric Quantum Geometry, *Class. Quan. Grav.* **21**, 4881–4900 (2004). [arXiv:gr-qc/0407018].

992. D. Cartin, G. Khanna and M. Bojowald, Generating function techniques for loop quantum cosmology, *Class. Quan. Grav.* **21**, 4495 (2004) [arXiv:gr-qc/0405126].

993. F. Conrady, L. Doplicher, R. Oeckl, C. Rovelli & M. Testa. Minkowski vacuum in background independent quantum gravity. *Phys. Rev.* **D69**:064019, 2004. [gr–qc/0307118]

994. A. Corichi, Comments on area spectra in loop quantum gravity, *Rev. Mex. Fis.* **50**:549 (2004) [arXiv:gr-qc/0402064].

995. A. Corichi & J. Cortez. Note on selfduality and the Kodama state. *Phys. Rev.* **D69**:047702, 2004. [hep–th/0311089]

996. M. Domagala and J. Lewandowski, Black hole entropy from quantum geometry, *Class. Quan. Grav.* **21**, 5233 (2004) [arXiv:gr-qc/0407051].

997. W. Fairbairn and C. Rovelli, Separable Hilbert space in loop quantum gravity, *J. Math. Phys.* **45**:2802 (2004) [arXiv:gr-qc/0403047].

998. L. Freidel, J. Kowalski–Glikman & L. Smolin. 2+1 gravity and doubly special relativity. *Phys. Rev.* **D69**:044001, 2004. [hep–th/0307085]

999. L. Freidel and D. Louapre, Ponzano-Regge model revisited. I: Gauge fixing, observables and interacting spinning particles, *Class. Quan. Grav.* **21**, 5685 (2004) [arXiv:hep-th/0401076].

1000. L. Freidel and L. Smolin, The linearization of the Kodama state, *Class. Quan. Grav.* **21**, 3831 (2004) [arXiv:hep-th/0310224].

1001. R. Gambini, R.A. Porto & J. Pullin. Decoherence from discrete quantum gravity. *Class. Quan. Grav.* **21**:L51–L57, 2004. [gr–qc/0305098]

1002. R. Gambini, R. Porto and J. Pullin, A relational solution to the problem of time in quantum mechanics and quantum gravity induces a fundamental mechanism for quantum decoherence, *New J. Phys.* **6**, 45 (2004) [arXiv:gr-qc/0402118].

1003. R. Gambini and J. Pullin, Canonical quantum gravity and consistent discretizations, *Pramana* **63**, 755 (2004) [arXiv:gr-qc/0402062].

1004. J.M. Garcia–Islas. (2+1)–dimensional quantum gravity, spin networks and asymptotics. *Class. Quan. Grav.* **21**:445–464, 2004. [gr–qc/0307054]

1005. J. M. Garcia-Islas, Observables in 3–dimensional quantum gravity and topological invariants, *Class. Quan. Grav.* **21**:3933 (2004) [arXiv:gr-qc/0401093].

1006. F. Girelli & E.R. Livine. Quantizing speeds with the cosmological constant. *Phys. Rev.* **D69**:104024, 2004. [gr–qc/0311032]

1007. G. Gour and V. Suneeta, Comparison of area spectra in loop quantum gravity, *Class. Quan. Grav.* **21**:3405 (2004) [arXiv:gr-qc/0401110].

1008. D. Green and W. G. Unruh, Difficulties with closed isotropic loop quantum cosmology, *Phys. Rev.* **D70**, 103502 (2004) [arXiv:gr-qc/0408074].

1009. V. Husain & O. Winkler. On singularity resolution in quantum gravity. *Phys. Rev.* **D69**:084016, 2004. [gr–qc/0312094]

1010. V. Husain & O. Winkler. Discrete Hamiltonian evolution and quantum gravity. *Class. Quan. Grav.* **21**:941–950, 2004. [gr–qc/0308011]

1011. I. B. Khriplovich, Quantized black holes, correspondence principle, and holographic bound, arXiv:gr-qc/0409031.

1012. I. B. Khriplovich, Spectrum of quantized black hole, correspondence principle, and holographic bound," *Sov. Phys.* **JETP**, 99:460 (2004) [Zh. Eksp. Teor. Fiz. **126**, 527 (2004)] [arXiv:gr-qc/0404083].

1013. C. N. Kozameh and M. F. Parisi, Lorentz invariance and the semiclassical approximation of loop quantum gravity, *Class. Quan. Grav.* **21**:2617 (2004) [arXiv:gr-qc/0310014].

1014. T. Levy. Wilson loops in the light of spin networks. *J. Geom. Phys.* **52**:382–397, 2004. [math–ph/0306059]

1015. J. E. Lidsey, Early universe dynamics in semi-classical loop quantum cosmology, JCAP **0412**, 007 (2004) [arXiv:gr-qc/0411124].

1016. E.R. Livine & D. Oriti. About Lorentz invariance in a discrete quantum setting. *JHEP* **0406**:050, 2004. [gr–qc/0405085]

1017. E.R. Livine & R. Oeckl. Three–dimensional quantum supergravity and supersymmetric spin foam models. *Adv. Theor. Math. Phys.* **7**:951–1001, 2004. [hep–th/0307251]

1018. S. K. Maran. Relating spin foams and canonical quantum gravity: (n-1)+1 formulation of nD spin foams," *Phys. Rev.* **D70**, 124004 (2004) [arXiv:gr-qc/0412011].

1019. K. A. Meissner, Black hole entropy in loop quantum gravity, *Class. Quan. Grav.* **21**:5245 (2004) [arXiv:gr-qc/0407052].

1020. A. Mikovic. Flat space–time vacuum in loop quantum gravity. *Class. Quan. Grav.* **21**:3909–3922, 2004. [gr–qc/0404021]

1021. L. Modesto. Disappearance of black hole singularity in quantum gravity. *Phys. Rev.* **D70**:124009, 2004. [gr–qc/0407097]

1022. R. Oeckl, The general boundary approach to quantum gravity, in: *Proceedings of the First International Conference on Physics*, Amirkabir University, Tehran, 2004, pp. 257-265; gr-qc/0312081.

1023. A. P. Polychronakos, Area spectrum and quasinormal modes of black holes, *Phys. Rev.* **D69**, 044010 (2004) [arXiv:hep-th/0304135].

1024. D. Shao, L. Shao, M. Saito, C.G. Shao & H. Noda. Cosmological term and extended loop representation of quantum gravity. *Int. J. Mod. Phys.* **A19**:4659–4670, 2004.

1025. P. Singh and A. Toporensky, "Big crunch avoidance in k = 1 loop quantum cosmology, *Phys. Rev.* **D69**, 104008 (2004) [arXiv:gr-qc/0312110].

1026. L. Smolin. Atoms of space and time. *Sci. Am.* **290N1**:66–75, 2004.

1027. L. Smolin, Quantum theories of gravity: Results and prospects, In *Barrow, J.D. (ed.) et al.: Science and ultimate reality* 492-527, 2004.

1028. S. Tsujikawa, P. Singh & R. Maartens. Loop quantum gravity effects on inflation and the CMB. *Class. Quan. Grav.* **21**:5767–5775, 2004. [astro–ph/0311015]

1029. J. M. Velhinho. Comments on the kinematical structure of loop quantum cosmology *Class. Quan. Grav.* **21**:L109 (2004) [arXiv:gr-qc/0406008].

1030. J. M. Velhinho. On the structure of the space of generalized connections, *Int. J. Geom. Meth. Mod. Phys.* **1**:311 (2004) [arXiv:math-ph/0402060].

1031. G. V. Vereshchagin, Qualitative approach to semi-classical loop quantum cosmology, *JCAP* **0407**, 013 (2004) [arXiv:gr-qc/0406108].

1032. J.A. Zapata. Loop quantization from a lattice gauge theory perspective. *Class. Quan. Grav.* **21**:L115–L122, 2004. [gr–qc/0401109]

2005

1033. A. Alekseev, A. P. Polychronakos and M. Smedback, Remarks on the black hole entropy and Hawking spectrum in loop quantum gravity, *Phys. Rev.* **D71**:067501 (2005) [arXiv:hep-th/0405036].

1034. J. Alfaro, Quantum gravity induced Lorentz invariance violation in the standard model: Hadrons," *Phys. Rev.* **72**, 024027 (2005) [arXiv:hep-th/0505228].

1035. J. Alfaro, Quantum gravity and Lorentz invariance deformation in the standard model, *Phys. Rev. Lett.* **94**, 221302 (2005) [arXiv:hep-th/0412295].

1036. A. Ashtekar and M. Bojowald, Black hole evaporation: A paradigm, *Class. Quan. Grav.* **22**, 3349 (2005). arXiv:gr-qc/0504029.

1037. A. Ashtekar, L. Bombelli and A. Corichi, Semiclassical states for constrained systems, *Phys. Rev.* **D72**, 025008 (2005) [arXiv:gr-qc/0504052].

1038. A. Ashtekar, J. Engle and C. Van Den Broeck, Quantum horizons and black hole entropy: Inclusion of distortion and rotation, *Class. Quan. Grav.* **22**, L27 (2005) [arXiv:gr-qc/0412003].

1039. J. W. Barrett. Feynman loops and three-dimensional quantum gravity, *Mod. Phys. Lett.* **A20**, 1271 (2005) [arXiv:gr-qc/0412107].

1040. M. Bojowald, Original Questions, *Nature* **436**, 920–921 (2005).

1041. M. Bojowald, Nonsingular black holes and degrees of freedom in quantum gravity,*Phys. Rev. Lett.* **95**, 061301 (2005). arXiv:gr-qc/0506128.

1042. M. Bojowald, R. Goswami, R. Maartens and P. Singh A black hole mass threshold from non-singular quantum gravitational collapse, *Phys. Rev. Lett.* **95**, 091302 (2005) [arXiv:gr-qc/0503041].

1043. M. Bojowald and A. Rej, Asymptotic properties of difference equations for isotropic loop quantum cosmology, *Class. Quan. Grav.* **22**, 3399 (2005). arXiv:gr-qc/0504100.

1044. M. Bojowald, H. A. Morales-Tecotl and H. Sahlmann, On loop quantum gravity phenomenology and the issue of Lorentz invariance, *Phys. Rev.* **D71**:084012 (2005) [arXiv:gr-qc/0411101].

1045. M. Bojowald and R. Swiderski, Spherically Symmetric Quantum Horizons, *Phys. Rev.* **D71**, 081501(R) (2005). [arXiv:gr-qc/0410147]

1046. L. Bombelli, A. Corichi and O. Winkler, Semiclassical quantum gravity: Statistics of combinatorial Riemannian geometries," *Annalen Phys.* **14**, 499-519 (2005). arXiv:gr-qc/0409006.

1047. D. Colosi, L. Doplicher, W. Fairbairn, L. Modesto, K. Noui and C. Rovelli, Background independence in a nutshell: The dynamics of a tetrahedron, *Class. Quan. Grav.* **22**, 2971 (2005) [arXiv:gr-qc/0408079].

1048. F. Conrady, Free vacuum for loop quantum gravity, *Class. Quan. Grav.* **22**, 3261 (2005). arXiv:gr-qc/0409036.

1049. L. Crane, Relational topology as the foundation for quantum gravity, *Mod. Phys. Lett.* **A20**, 1261 (2005).

1050. G. Date, Absence of the Kasner singularity in the effective dynamics from loop quantum cosmology, *Phys. Rev.* **D71**, 127502 (2005) [arXiv:gr-qc/0505002].

1051. C. Di Bartolo, R. Gambini and J. Pullin, Consistent and mimetic discretizations in general relativity, *J. Math. Phys.* **46**, 032501 (2005) [arXiv:gr-qc/0404052].

1052. R. Gambini and J. Pullin, Consistent discretization and loop quantum geometry, *Phys. Rev. Lett.* **94**, 101302 (2005) [arXiv:gr-qc/0409057].

1053. F. Girelli and E. R. Livine, Reconstructing quantum geometry from quantum information: Spin networks as harmonic oscillators, *Class. Quan. Grav.* **22**, 3295 (2005). arXiv:gr-qc/0501075.

1054. F. Girelli and E. R. Livine, Physics of Deformed Special Relativity," *Braz. J. Phys.* **35**, 432 (2005) [arXiv:gr-qc/0412079].

1055. F. Girelli, E. R. Livine and D. Oriti, Deformed special relativity as an effective flat limit of quantum gravity," *Nucl. Phys.* **B708**, 411 (2005) [arXiv:gr-qc/0406100].

1056. G. M. Hossain, On energy conditions and stability in effective loop quantum cosmology, *Class. Quan. Grav.* **22**, 2653 (2005) [arXiv:gr-qc/0503065].

1057. I. B. Khriplovich, Radiation of quantized black hole, *J. Exp. Theor. Phys.* **100**, 1075 (2005) [*Zh. Eksp. Teor. Fiz.* **100**, 1223 (2005)] [arXiv:gr-qc/0412121].

1058. I. B. Khriplovich, Quasinormal modes, quantized black holes, and correspondence principle, *Int. J. Mod. Phys.* **D14**, 181 (2005) [arXiv:gr-qc/0407111].

1059. E. R. Livine, Some Remarks on the Semi-Classical Limit of Quantum Gravity, *Braz. J. Phys.* **35**, 442 (2005) [arXiv:gr-qc/0501076].

1060. D. J. Mulryne, N. J. Nunes, R. Tavakol and J. E. Lidsey, Inflationary cosmology and oscillating universes in loop quantum cosmology, *Int. J. Mod. Phys.* **A20**, 2347 (2005) [arXiv:gr-qc/0411125].

1061. D. J. Mulryne, R. Tavakol, J. E. Lidsey and G. F. R. Ellis. An emergent universe from a loop, *Phys. Rev.* **D71**, 123512 (2005) [arXiv:astro-ph/0502589].

1062. J. A. Nieto, Towards an Ashtekar formalism in eight dimensions, *Class. Quan. Grav.* **22**, 947 (2005) [arXiv:hep-th/0410260].

1063. H. Nicolai, K. Peeters and M. Zamaklar, Loop quantum gravity: An outside view, *Class. Quan. Grav.* **22**, R193-R247 (2005). [arXiv:hep-th/0501114].

1064. J. A. Nieto, Equivalence between various versions of the self-dual action of the Ashtekar formalism, *Mod. Phys. Lett.* **A20**, 2157-2163, 2005 [arXiv: hep-th/0411124]

1065. K. Noui and A. Perez, Three dimensional loop quantum gravity: Physical scalar product and spin foam models, *Class. Quan. Grav.* **22**:1739 (2005) [arXiv:gr-qc/0402110].

1066. K. Noui, A. Perez and K. Vandersloot, On the physical Hilbert space of loop quantum cosmology, *Phys. Rev.* **D71**, 044025 (2005) [arXiv:gr-qc/0411039].

1067. R. Oeckl, States on timelike hypersurfaces in quantum field theory, *Phys. Lett.* **B622**, 172 (2005) [arXiv:hep-th/0505267].

1068. R. Oeckl, Renormalization for spin foam models of quantum gravity, in: *Proceedings of the Tenth Marcel Grossmann Meeting on General Relativity* (Rio de Janeiro, 2003), World Scientific, Singapore, 2005; gr-qc/0401087.

1069. A. Okolow and J. Lewandowski, Automorphism covariant representations of the holonomy-flux *-algebra, *Class. Quan. Grav.* **22**, 657 (2005) [arXiv:gr-qc/0405119].

1070. D. Oriti, The Feynman propagator for quantum gravity: Spin foams, proper time, orientation, causality and timeless-ordering," *Braz. J. Phys.* **35**, 481 (2005) [arXiv:gr-qc/0412035].

1071. D. Oriti, The Feynman propagator for spin foam quantum gravity, *Phys. Rev. Lett.* **94**, 111301 (2005) [arXiv:gr-qc/0410134].

1072. D. Oriti, C. Rovelli and S. Speziale, Spinfoam 2d quantum gravity and discrete bundles, *Class. Quan. Grav.* **22**, 85 (2005) [arXiv:gr-qc/0406063].

1073. M. Saito, H. Noda and T. Tashiro, Structure of extended loop wave function in quantum gravity and operator formalism, *Int. J. Mod. Phys.* **A20**:907 (2005) [arXiv:gr-qc/0405106].

1074. J. Swain, The Pauli exclusion principle, spin, and statistics in loop quantum gravity: SU(2) versus SO(3), Proceedings of the Tenth Marcel Grossmann Meeting on General Relativity, edited by M. Novello, S. Perez-Bergliaffa and R. Ruffini, World Scientific, Singapore, 2005. arXiv:gr-qc/0402091.

1075. K. Vandersloot, On the Hamiltonian constraint of loop quantum cosmology, *Phys. Rev.* **D71**, 103506 (2005) [arXiv:gr-qc/0502082].

1076. M. Varadarajan, The graviton vacuum as a distributional state in kinematic loop quantum gravity, *Class. Quan. Grav.* **22**:1207 (2005) [arXiv:gr-qc/0410120].

1077. J. M. Velhinho, Functorial aspects of the space of generalized connections," *Mod. Phys. Lett.* **A20**, 1299 (2005) [arXiv:math-ph/0411073].

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