

List of Publications of Prof. T. Padmanabhan - Sept 2020

1977

1. **T.Padmanabhan**, Solutions of scalar and electromagnetic wave equations in the field of gravitational and electromagnetic waves, *Pramana*, (1977), **9**, 371.

1981

2. **T.Padmanabhan**, Quantum fluctuations and the non-avoidance of singularities in Bianchi Type I cosmologies, *Gen. Rel.Grav.*, (1981),**13**, 451.
3. **T.Padmanabhan** and J.V. Narlikar, Quantum fluctuations in conformally flat and Schwarzschild spacetimes *Gen. Rel. Grav.*, (1981), **13**, 669.
4. **T.Padmanabhan** and J.V. Narlikar, Stationary states in a Quantum Gravity model , *Phys. Letts*, (1981), **84A**, 361.

1982

5. **T.Padmanabhan** and J.V. Narlikar, Quantum conformal fluctuations in a singular space-time, *Nature* (1982), **295**, 677.
6. **T.Padmanabhan**, General covariance, Accelerated frames and the particle concept, *Astrophys. Sp. Sc.*, (1982), **83**, 247.
7. **T.Padmanabhan**, Conformal fluctuations in a quantum universe with a scalar field, *Phys. Rev.* (1982), **D26**, 2162.
8. **T.Padmanabhan**, Friedmann Universe in a Quantum Gravity model, *Phys. Letts.*, (1982), **87A**, 226.
9. **T.Padmanabhan**, Spontaneous symmetry breaking in non inertial frames and curved spacetime, *Phys. Letts.*, (1982), **89A**, 131.
10. **T.Padmanabhan** and M.M. Vasanthi, Can curvature effects be neglected in the early universe?, *Phys. Letts.*, (1982), **89A**, 327.
11. N. Dadhich and **T.Padmanabhan**, On the validity of the geodesic motion near a black hole - A clarification, *Lett. Nuv. Cem.*, (1982), **33**, 317.
12. **T.Padmanabhan**, Quantum Stationary states in Bianchi Universe, *Gen. Rel. Grav.*, (1982),**14**, 549.

1983

13. **T.Padmanabhan**, Symmetry breaking in the early universe and accelerated frames, *Jour. Phys.A.*, (1983),**16**, 335.

14. **T.Padmanabhan**, Quantum cosmology and stationary states, *Gen. Rel. Grav.*, (1983), **15**, 435.
15. **T.Padmanabhan**, Instability of flat space and origin of conformal fluctuations, *Phys. Letts.* (1983), **93A**, 116.
16. **T.Padmanabhan**, Quantum gravity and the “flatness problem” of standard big bang cosmology, *Phys. Letts.*, (1983), **96A**, 110.
17. **T.Padmanabhan**, An approach to quantum gravity, *Phys. Rev.* (1983), **D28**, 745.
18. **T.Padmanabhan**, Universe before Planck time - A quantum gravity model, *Phys. Rev.* (1983), **D28**, 756.
19. **Review Article: J.V. Narlikar and T.Padmanabhan**, Quantum cosmology via path integrals *Phys. Rept.*, (1983), **100**, 151.
20. **T.Padmanabhan**, Quantum conformal fluctuations and stationary states, *Int. Jour. Theo. Phys.*, (1983), **22**, 1023.
21. J.V. Narlikar and **T.Padmanabhan**, Problems of singularity, particle horizon and flatness in quantum cosmology, *Ann. Phys.*, (1983), **150**, 289.
22. J.V. Narlikar and **T.Padmanabhan**, Quantum cosmology as a cure for three ailments of classical cosmology, *Bull. Astron. Soc. India*, (1983), **11**, 297.

1984

23. **T.Padmanabhan**, Quantum stationary geometries and avoidance of singularities, *Class. Quan. Grav.*, (1984), **1**, 149.
24. **T.Padmanabhan**, Inflation from quantum gravity, *Phys. Letts.*, (1984), **A104**, 196.

1985

25. **T.Padmanabhan**, Why does an accelerated detector click? *Class. Quan. Grav.*, (1985), **2**, 117.
26. **T.Padmanabhan**, Planck length is the lower bound to all physical length scales, *Gen. Rel. Grav.*, (1985), **17**, 215. ¹
27. **T.Padmanabhan**, Vacuum fluctuation in Einstein’s elevator, *Bull. Astron. Soc. India*, (1985) **13**, 225.
28. **T.Padmanabhan**, Conformal Invariance, Gravity and Massive gauge theories, *Class. Quan. Grav.*, (1985), **2**, L105.
29. **T.Padmanabhan**, Physics at Planck length, *Current Science*, (1985), **54**, 912.

¹Fifth Prize essay; Gravity Research Foundation Essay Contest, 1984.

30. **T.Padmanabhan** and M.M. Vasanthi, Possible cosmological scenario with an unstable 17 Kev neutrino, *Nature*, (1985), **317**, 335.
31. **T.Padmanabhan**, Physical significance of Planck length, *Ann. Phys.*, (1985), **165**, 38.
32. J.V. Narlikar and **T.Padmanabhan**, The C-field cosmology: a possible solution to singularity, horizon and flatness problems, *Phys. Rev. D.*, (1985), **32**, 1928.
33. **T.Padmanabhan** and M.M. Vasanthi, Gravitational perturbation of homogeneous collisionless dark matter, *Jour. Astrophys. Astron.* (1985), **6**, 247.
34. J.V. Narlikar and **T.Padmanabhan**, On a nonlinear and Lorentz Invariant version of Newtonian gravitation, *Jour. Astrophys. Astron.*, (1985), **6**, 171.
35. **T.Padmanabhan**, Quantum mechanics in the deSitter spacetime and Inflationary Scenario, *Jour. Astrophys. Astron.*, (1985), **6**, 239.
36. **T.Padmanabhan** and M.M. Vasanthi, Nature and distribution of dark matter: 1. Milky way and dwarf spheroids, *Jour. Astrophys. Astron.* (1985), **6**, 261.

1986

37. M.M. Vasanthi and **T.Padmanabhan**, Constraints on unstable heavy neutrinos from cosmology *Jour. Astrophys. Astron.*, (1986) **7**, 59.
38. **T.Padmanabhan**, On the quantum structure of horizons, *Phys.Letts.*, (1986), **B173**, 43.
39. **T.Padmanabhan** and T.R. Seshadri, Probing the origin of large inhomogeneities in inflation using a toy quantum mechanical model, *Phys. Rev.* (1986), **D34**, 951.
40. **T.Padmanabhan**, T.R. Seshadri and T.P. Singh, Uncertainty principle and the quantum fluctuations of Schwarzschild light cones. *Jour. Mod. Phys.*, A (1986), **1**, 491.
41. S.M. Chitre, J.V. Narlikar and **T.Padmanabhan**, Temperature fluctuations of cosmic microwave background induced by gravitational lensing *Phys. Letts. A* (1986) **117**, 285.
42. **T.Padmanabhan**, The role of general relativity in uncertainty principle, *Class. Quan. Grav.*, (1986), **3**, 911.

1987

43. **T.Padmanabhan** and S.M. Chitre, Is gravitational lensing a local phenomenon caused by Pop - III objects? *Astrophys. Letts.*, (1987), **25**, 255.
44. **T.Padmanabhan** and M.M. Vasanthi, Dynamical scenarios with unstable heavy neutrino *Astrophys. Jour.*, (1987), **315**, 411.
45. P.S. Joshi, **T.Padmanabhan** and S.M. Chitre, Bounds on vacuum energy density in a general cosmological scenario *Phys. Letts. A* (1987), **120**, 115

46. **T.Padmanabhan** and S.M. Chitre, Viscous universes *Phys. Letts. A*, (1987), **120**, 433.
47. T.P. Singh and **T.Padmanabhan**, Semiclassical cosmology with a scalar field *Phys. Rev. D* (1987), **35**, 2993.
48. U.A. Yagnik and **T.Padmanabhan**, Analytic approach to string-induced phase transitions *Phys. Rev. D* (1987), **35**, 3100.
49. **T.Padmanabhan**, Limitations on the operational definition of spacetime events and quantum gravity, *Class. Quan. Grav.*, (1987), **4**, L107.
50. **T.Padmanabhan**, Quantum states whose particle content is invariant under the Bogoliubov transformation, *Class. Quan. Grav.*, (1987), **4**, 967.
51. **T.Padmanabhan** and T.R. Seshadri, Uncertainty principle and the horizon size of our universe *Gen. Rel. Grav.*, (1987), **19**, 791.
52. **T.Padmanabhan** and T.P. Singh, Response of an accelerated detector coupled to the stress energy tensor *Class. Quan. Grav.*, (1987), **4**, 1397.
53. **T.Padmanabhan**, Gravitational field of the quantized electromagnetic plane wave, *Gen. Rel. Grav.*, (1987), **19**, 927.
54. **T.Padmanabhan** and T.R. Seshadri, Horizon problem and inflation *Jour. Astrophys. Astron.* (1987), **8**, 275.

1988

55. **T.Padmanabhan** and T.R. Seshadri, Does inflation solve the horizon problem? *Class. Quan. Grav.*, (1988), **5**, 221.
56. J.V. Narlikar and **T.Padmanabhan**, The Schwarzschild solution: some conceptual difficulties, *Found. Phys.*, (1988), **18**, 659.
57. **T.Padmanabhan**, Principle of general covariance and quantum theory, *Mod. Phys. Letts.* (1988), **A3**, 367.
58. **T.Padmanabhan**, Acceptable density perturbations from inflation due to quantum gravitational damping, *Phys. Rev. Letts.*, 1988, **60**, 2229.
59. T.P. Singh and **T.Padmanabhan**, An attempt to explain the smallness of the cosmological constant *Jour. Mod. Phys.* (1988) **A3**, 1593.
60. **T.Padmanabhan** and T.R. Seshadri, Quantum uncertainty in the horizon size in an inflationary universe, *Jour. Mod. Phys.* (1988) **3**, 2113.
61. **T.Padmanabhan** and K. Subramanian, The focusing equations, caustics and the condition for multiple imaging by thick gravitational lenses *Mon. Not. R.A.S.*, (1988), **233**, 265.

62. **T.Padmanabhan** and T.P. Singh, Response of accelerated detectors in coherent states and the semi-classical limit, *Phys. Rev. D.*, (1988), **38**, 2457.
63. A.R. Janah, **T.Padmanabhan** and T.P. Singh, On Feynman's formula for the electromagnetic field of an arbitrarily moving charge *Am. Jour.Phys.* 56, **1036** (1988).

1989

64. **T.Padmanabhan**, Semi-classical approximations for gravity and the issue of backreaction, *Class. Quan. Grav.* (1989) **6**, 533.
65. **T.Padmanabhan**, T.R. Seshadri and T.P. Singh, Making inflation work : Damping of density perturbations due to Planck energy cut-off. *Phys. Rev. D.*(1989) **39**, 2100.
66. **T.Padmanabhan**, Phase volume occupied by a test particle around an incipient black-hole, *Phys.Letts.A.* (1989) **136**, 203.
67. **T.Padmanabhan**, Decoherence in the density matrix describing the quantum three geometries and the emergence of classical spacetime; *Phys.Rev.D* **39**, 2924, (1989).
68. **Review Article:T.Padmanabhan**, Some fundamental aspects of semiclassical and quantum gravity; *Jour. Mod. Phys.A4*, 4735, (1989).
69. **T.Padmanabhan**, A note on the volume occupied in phase space by a system of gravitationally interacting particles, *Astrophys. Jour.*,**344**, 848 (1989).
70. T. Dray and **T.Padmanabhan**, Conserved quantities from piecewise Killing vectors *Gen. Rel. Grav.*, **21**, 741 (1989).
71. **T.Padmanabhan**, Antonov instability and gravo-thermal catastrophe-revisited, *Astrophys.Jour.Supp.*,**71**, 651 (1989).
72. T.P. Singh and **T.Padmanabhan**, Notes on semiclassical gravity *Ann.Phys.*, **196**, 296 (1989).
73. M.M. Vasanthi and **T.Padmanabhan**, Nature and distribution of dark matter: 2. Groups and Clusters of galaxies *Jour. Astrophys. Astro.* **10**, 425 (1989).
74. T.R. Seshadri and **T.Padmanabhan**, Gaussian states in the De-Sitter spacetime and the evolution of semiclassical density perturbations: 1. Homogeneous mode, *Jour.Astrophys. Astron.* **10**, 391 (1989).
75. T.R. Seshadri and **T.Padmanabhan**, Gaussian states in the De-Sitter spacetime and the evolution of semiclassical density perturbations: 2. Inhomogeneous modes *Jour. Astrophys. Astron.* **10**, 407 (1989).

1990

76. **T.Padmanabhan** and T.P. Singh, On the semiclassical limit of Wheeler-DeWitt equation *Class. Quan. Grav.*. **7**, 441 (1990)

77. **Review article: T.Padmanabhan**, Statistical mechanics of gravitating systems, *Phys. Rept.* **188**, 285 (1990).
78. **T.Padmanabhan**, The physical interpretation of quantum field theory in non-inertial co-ordinate systems, *Phys.Rev.Letts.*,**64**, 2471(1990).
79. **T.Padmanabhan**, A definition for time in quantum cosmology, *Pramana- Journal of Physics*, **35**, 199 (1990).
80. **T.Padmanabhan**, Mach's principle and the notion of time, *Pramana-Jour.Phys.* **35**, 317(1990).

1991

81. **T.Padmanabhan**, Vacuum polarization around an Aharonov - Bohm solenoid, *Pramana - Jour. Phys.*, **36**, 253 (1991).
82. **Review article: J.V.Narlikar and T.Padmanabhan**, Inflation for astronomers, *Ann. Rev. Astron. Astrophys.*, **29** 325 (1991)
83. C.Keifer, **T.Padmanabhan** and T.P.Singh, A comparison between semiclassical gravity and semiclassical electrodynamics *Class.Quan.Grav.*, **8**, L185, (1991).
84. **T.Padmanabhan**, Liouville field theory and the partition function for two dimensional Newtonian gravity, *Mon.Not.R.Astron.Soc.*, **253**,445 (1991).
85. **T.Padmanabhan**, Quantum theory in external electromagnetic and gravitational fields: a comparison of some conceptual issues, *Pramana-Journal of Physics*, **37**, 179 (1991).
86. **T.Padmanabhan**, Recent COBE results and their cosmological implications, *Curr. Science*, **62**, 655 (1991).

1992

87. **T.Padmanabhan**, Structure formation in the universe: Comparison of some observations and models, *Curr. Science*,**63**,379 (1992).
88. **Review article: T.Padmanabhan** and K. Subramanian, Galaxy Formation, *Bull. Astron. Soc. of India*, **20**, 1 (1992).
89. **T.Padmanabhan** and D. Narasimha, Constraints on the shape of the density spectrum from COBE and galaxy surveys, *MNRAS*,**259**, 41P (1992).
90. **T.Padmanabhan** and T.P. Singh, A comparison of various approaches to the back reaction problem, *Ann. Phys*, **221**, 217 (1992).

1993

91. **T.Padmanabhan** and K. Subramanian, Zeldovich approximation and the probability distribution for the smoothed density field in the nonlinear regime, *Ap.J.*, **410**, 482 (1993).
92. **T.Padmanabhan** and K. Subramanian, Aspects of Zeldovich approximation, *Ap.J.*, **417**, 3, (1993).
93. K. Subramanian and **T.Padmanabhan**, Neutral Hydrogen at high redshifts as a probe of structure formation: 1. Post-COBE analysis of CDM and HDM models, *MNRAS*, **265**, 101, (1993).

1994

94. J.S. Bagla and **T.Padmanabhan**, Nonlinear evolution of density perturbations using approximate constancy of gravitational potential, *MNRAS*, **266**, 227, (1994).
95. **T.Padmanabhan**, Path integral for the relativistic particle and harmonic oscillator, *Found.Physics*, **24**, 1543, (1994).
96. R. Nityananda and **T.Padmanabhan**, Scaling properties of nonlinear gravitational clustering, *MNRAS*, **271**, 976, (1994).

1995

97. A. Kumar, **T.Padmanabhan** and K. Subramanian, Neutral hydrogen at high redshifts as a probe of structure formation. II Line profiles of a protocluster, *MNRAS*, **272**, 544, (1995).
98. **T.Padmanabhan**, Cosmology Today: Models and constraints, *Jour. Astrophys. Astron*, **16**, 47 (1995).
99. J.S. Bagla and **T.Padmanabhan**, Nonlinear evolution of density perturbations, *Jour. Astrophys. Astron*, **16**, 77 (1995).
100. A. Kumar, K. Subramanian and **T.Padmanabhan**, Neutral hydrogen at high redshifts as a probe of structure formation, *Jour. Astrophys. Astron* , **16**, 83 (1995).

1996

101. **T.Padmanabhan**, Modelling the nonlinear gravitational clustering in the expanding universe, *MNRAS* , **278**. L29 (1996). (astro-ph/9508124)
102. **T.Padmanabhan**, Stellar Dynamics and Chandra, *Current Science*, **70**, 784 (1996).
103. **Review article:** J.S. Bagla, **T. Padmanabhan** and J.V. Narlikar, Crisis in Cosmology: Observational constraints on Ω and H_0 , *Comm. on Astrophys.*, **18**, 275 (1996). (astro-ph/9511102).

- 104. **T.Padmanabhan**, Renyue Cen, J.P. Ostriker and F.Summers, Patterns in non-linear gravitational clustering: a numerical investigation, *Ap. J.*, **466**, 604 (1996). (astro-ph/9506051)
- 105. J.S. Bagla and **T.Padmanabhan**, A new statistical indicator to study nonlinear gravitational clustering and structure formation, *Ap. J.*, **469**, 470 (1996). (astro-ph/9503121)
- 106. L. Sriramkumar and **T.Padmanabhan**, Finite time response of inertial and uniformly accelerated Unruh-DeWitt detectors, *Class.Q.Grav.*, **13**, 2061 (1996).
- 107. L. Sriramkumar and **T. Padmanabhan**, Does a non-zero tunneling probability imply particle production in time independent electromagnetic backgrounds, *Phys. Rev.D*, **54**, 7599, (1996). (hep-th/9604111)

1997

- 108. **T. Padmanabhan**, Duality and zero-point length of spacetime, *Phys. Rev. Letts*, **78**, 1854 (1997). (hep-th/9608182)
- 109. J.S. Bagla and **T. Padmanabhan**, Transfer of Power in Nonlinear Gravitational Clustering, *MNRAS*, **286**, 1023 (1997). (astro-ph/9605202)
- 110. L. Sriramkumar, R. Mukund and **T. Padmanabhan**, Non-trivial classical backgrounds with vanishing quantum corrections, *Phys.Rev.D*, **55**, 6147 (1997). (hep-th/9703034)
- 111. **T. Padmanabhan**, Inverse Compton scattering – Revisited, *Jour. Astrophys. Astron.*, **18**, 87 (1997).
- 112. J.S. Bagla, Biman Nath and **T. Padmanabhan**, Neutral hydrogen at high redshifts as a probe of structure formation – III. Radio maps from N-body simulations, *MNRAS*, **289**, 671 (1997). (astro-ph/9610267)
- 113. J.S. Bagla and **T. Padmanabhan**, Cosmological N-Body Simulations, *Pramana - J. Phys.*, **42**, 161 (1997).
- 114. D. Munshi and **T. Padmanabhan**, Modelling the evolution of correlation functions in gravitational clustering, *MNRAS*, **290**, 193 (1997). (astro-ph/9606170)
- 115. K. Srinivasan, L. Sriramkumar and **T. Padmanabhan**, Plane waves viewed from an accelerated frame: Quantum physics in classical setting, *Phys.Rev.D*, **56**, 6692 (1997)
- 116. K. Srinivasan, L. Sriramkumar and **T. Padmanabhan**, Possible quantum interpretation of certain power spectra in classical field theory, *Int. J. Mod. Phys. D*, **6**, 607-623, (1997)

1998

- 117. **T.Padmanabhan** and Sunu Engineer, Nonlinear gravitational clustering: Dreams of a paradigm, *Ap. J.*, **493**, 509 (1998). (astro-ph/9704224)

- 118. J.S. Bagla, Sunu Engineer and **T.Padmanabhan**, Scaling Relations for Gravitational Clustering in two Dimensions, *Ap. J.*, **495**, 25-28 (1998). (astro-ph/9707330)
- 119. **T. Padmanabhan**, The Hypothesis of Path Integral Duality I: Quantum Gravitational Corrections to the Propagator *Phys. Rev. D.*, **57**, 6206 (1998).
- 120. Abhinav Gupta and **T.Padmanabhan**, Radiation from a charged particle and radiation reaction- revisited *Phys.Rev.D*, **57**, 7241 (1998)
- 121. **T.Padmanabhan**, Quantum structure of spacetime and blackhole entropy *Phys. Rev. Let.*, **81**, 4297 (1998). (hep-th/9801015)
- 122. K.Srinivasan, L.Sriramkumar and **T. Padmanabhan**, The Hypothesis of Path Integral Duality II: Corrections to quantum field theoretic results *Phys. Rev. D.*, **58**, 044009 (1998). (gr-qc/9710104)

1999

- 123. S. Engineer, K. Srinivasan and **T.Padmanabhan**, Formal Analysis of two Dimensional Gravity *Ap. J.*, **512**, 1, (1999). (astro-ph/9805192)
- 124. **T.Padmanabhan**, Event horizon: Magnifying glass for Planck length physics *Phys. Rev. D.*, **59**, 124012 (1999) (hep-th/9801138)
- 125. K. Srinivasan and **T.Padmanabhan**, Particle Production and Complex Path Analysis *Phys. Rev. D*, **60**, 24007 (1999) (gr-qc/9812028)
- 126. **T.Padmanabhan** Probing the quantum microstructure of spacetime *Mod. Phys. Lett. A.*, **14**, 24, 1667-1672 (1999)

2000

- 127. **T. Padmanabhan** and Nissim Kanekar, Gravitational Clustering in a D-dimensional Universe *Phys. Rev. D*, **61**, 023515 (2000). (astro-ph/9910035)
- 128. S. Engineer, N. Kanekar and **T. Padmanabhan**, Nonlinear density evolution from an improved spherical collapse model *MNRAS* **314**, 279-289 (2000). (astro-ph/9812452)
- 129. **T. Padmanabhan** and T. Roy Choudhury, The issue of choosing nothing: What determines the low energy vacuum state of nature? *Mod. Phys. Lett. A*, **15**, No.29, 1813-1821 (2000). (gr-qc/0006018)

2001

- 130. T. Roy Choudhury, **T. Padmanabhan** and R. Srianand, Semianalytic approach to understanding power spectrum of neutral hydrogen in the universe *MNRAS*, **322**, 561, (2001) (astro-ph/0005252)
- 131. S. Shankaranarayanan and **T. Padmanabhan**, Hypothesis of path integral duality: Applications to QED *Int. Jour. Mod. Phys*, **10**, No.3, 351-365 (2001) (gr-qc/0003058)

132. S. Shankaranarayanan, K. Srinivasan and **T. Padmanabhan**, Method of complex paths and general covariance of Hawking radiation *Mod. Phys. Letts.*, **16**, No. 9, 571-578 (2001)(gr-qc/0007022)
133. **T. Padmanabhan** and S. Shankaranarayanan, Vanishing of Cosmological Constant in Nonfactorizable Geometry *Phys. Rev. D.*, **63**, 105021, (2001). (hep-th/0011159)
134. Nissim Kanekar and **T. Padmanabhan**, The effects of anti-correlation on gravitational clustering *MNRAS*, **324**, 988 (2001). (astro-ph/0101562)
135. **T. Padmanabhan** and Shiv Sethi, Constraints on Ω_B, Ω_m and h from MAXIMA and BOOMERANG *Ap.J.*, **555**, 125-129, (2001). (astro-ph/0010309)
136. **Review article:** J.V. Narlikar and **T. Padmanabhan**, Standard Cosmology and Alternatives: A Critical Appraisal *Ann. Rev. Astron. and Astroph.*, **39**, 211, (2001).
137. T. Roy Choudhury, R. Srianand and **T. Padmanabhan**, Semi analytic approach to understanding the distribution of neutral hydrogen in the universe: Comparison of simulations with observations *Ap.J.* **559**, 29, (2001). (astro-ph/0012498)

2002

138. L. Sriramkumar and **T. Padmanabhan**, Probes of vacuum structure of quantum fields in classical backgrounds *Int. Jour. Mod. Phys.*, **D11**, 1, (2002). (gr-qc/9903054)
139. J. Hwang, **T. Padmanabhan**, O. Lahav and H. Noh, On the (1/3) factor in the CMB Sachs-Wolfe effect *Phys. Rev. D.*, **65**, 043005-5 (2002). (astro-ph/0107307)
140. S. Shankaranarayanan, **T. Padmanabhan** and K. Srinivasan, Hawking radiation in different coordinate settings: Complex paths approach *Class. Quan. Grav.*, **19** 2671 (2002). (gr-qc/0010042)
141. **T. Padmanabhan**, Combining general relativity and quantum theory: Points of conflict and contact, *Class. Quan. Grav.* **19**, 3551 (2002). (gr-qc/0110046)
142. **T. Padmanabhan**, Thermodynamics and/of horizons: A comparison of Schwarzschild, Rindler and deSitter spacetimes, *Mod. Phys. Letts. A*, **17**, 923 (2002). (gr-qc/0202078)
143. **T. Padmanabhan**, Is gravity an intrinsically quantum phenomenon? Dynamics of gravity from the entropy of spacetime and the principle of equivalence, *Mod. Phys. Letts. A*, **17**, 1147 (2002). (hep-th/0205278)
144. T. Roy Choudhury, **T. Padmanabhan**, A simple analytic model for the abundance of damped Lyman alpha absorbers, *Ap. J.* **574**, 59 (2002). (astro-ph-0110359)
145. **T. Padmanabhan**, Accelerated expansion of the universe driven by tachyonic matter, *Phys. Rev. D* **66**, 021301 (2002). (hep-th/0204150). ²

²Selected by Thomson Essential Science Indicators for High Impact; see <http://www.esi-topics.com/nhp/2004/january-04-ThanuPadmanabhan.html>

- 146. **T. Padmanabhan** Why do we observe a small but non zero cosmological constant? *Class. Quan. Grav.*, **19**, L167 (2002). (gr-qc/0204020)
- 147. **T. Padmanabhan** Classical and Quantum Thermodynamics of horizons in spherically symmetric spacetimes, *Class. Quan. Grav.* **19**, 5387 (2002) (gr-qc/0204019)
- 148. **T. Padmanabhan**, T. Roy Choudhury, Can the clustered dark matter and smooth dark energy arise from the same scalar field? *Phys. Rev. D* **66** (2002) 081301 (hep-th/0205055)
- 149. **T. Padmanabhan** Evolution of the Correlation Function for a Class of Processes involving Non Local Self-Replication, *Ap. J.* **579**, 10 (2002) (astro-ph-0203053).
- 150. **T. Padmanabhan**, The Holography of gravity encoded in a relation between entropy, horizon area and the action for gravity, *Gen. Rel. Grav.* **34** 2029-2035 (2002) (gr-qc/0205090) ³

2003

- 151. J.S. Bagla, H.K. Jassal, **T. Padmanabhan** Cosmology with tachyon field as dark energy *Phys. Rev. D* **D 67**, 063504 (2003) (astro-ph/0212198)
- 152. M.Sami and **T. Padmanabhan** A Viable Cosmology with a Scalar Field Coupled to the Trace of the Stress-Tensor *Phys. Rev. D* **67** 083509 (2003) (hep-th/0212317)
- 153. **Review article: T. Padmanabhan** Cosmological Constant - the Weight of the Vacuum, *Physics Reports* **380**, 235-320 (2003) (hep-th/0212290)
- 154. **T. Padmanabhan**, T. Roy Choudhury, A theoretician's analysis of the supernova data and the limitations in determining the nature of dark energy *MNRAS*, **344** 823-834 (2003) (astro-ph/0212573)
- 155. **T. Padmanabhan** Gravity from Spacetime Thermodynamics, *Ap. Sp. Sc. (special issues)* **285**, 407 (2003) (gr-qc/0209088)
- 156. Tarun Deep Saini, **T. Padmanabhan**, Sarah Bridle, Response of distance measures to the equation of state, *MNRAS*, **343**, 533 (2003) (astro-ph/0301536)
- 157. **T. Padmanabhan**, T. P. Singh, A note on the thermodynamics of gravitational radiation, *Class. Quant. Grav.*, **20**, 4419 (2003) (gr-qc/0305030)
- 158. **T. Padmanabhan** Why gravity has no choice: Bulk spacetime dynamics is dictated by information entanglement across horizons *Gen. Rel. Grav.*, **35**, 2097-2103 (2003) ⁴.
- 159. **T. Padmanabhan** Topological interpretation of the horizon temperature, *Mod. Phys. Rev. Letts.*, **18**, 2903 (2003) (hep-th/0302068)

³Second Prize essay; Gravity Research Foundation Essay Contest, 2002.

⁴Fifth Prize essay; Gravity Research Foundation Essay Contest, 2003.

2004

160. **T. Padmanabhan** Quasi normal modes: A simple derivation of the level spacing of the frequencies *Class. Quant. Grav.* **21** L1 (2004) (gr-qc/0310027)
161. T. Roy Choudhury, **T. Padmanabhan**, Quasi normal modes in Schwarzschild-DeSitter spacetime: A simple derivation of the level spacing of the frequencies *Phys. Rev. D* **D 69** 064033 (2004) (gr-qc/0311064)
162. **T. Padmanabhan** Gravitational Entropy of static spacetimes and microscopic density of states, *Class. Quant. Grav.*, **21**, 4485 (2004) (gr-qc/0308070)
163. **T. Padmanabhan**, Entropy of Horizons, Complex Paths and Quantum Tunneling, *Mod. Phys. Letts. A* **19**, 2637-2643 (2004) (gr-qc/0405072)
164. **T. Padmanabhan**, Gravity as elasticity of spacetime: a paradigm to understand horizon thermodynamics and cosmological constant, *Int. Jour. Mod. Phys. D*, **13** 2293-2298 (2004) (gr-qc/0408051)

2005

165. **Review article: T. Padmanabhan** Gravity and the Thermodynamics of Horizons, *Phys. Reports*, **406**, 49 (2005) (gr-qc/0311036)
166. T. Roy Choudhury, **T. Padmanabhan**, Cosmological parameters from supernova observations: A critical comparison of three data sets, *Astron. Astrophys.*, **429**: 807, (2005) (astro-ph/0311622).⁵
167. H.K. Jassal, J.S. Bagla, **T. Padmanabhan**, WMAP constraints on low redshift evolution of dark energy, *Mon. Not. Roy. Astron. Soc. Letters*, **356**, L11-L16, (2005) (astro-ph/0404378)
168. **T. Padmanabhan** Dark Energy: the Cosmological Challenge of the Millennium, *Current Science*, **88**,1057, (2005), (astro-ph/0411044)
169. L. Sriramkumar, **T. Padmanabhan** Initial state of matter fields and trans-Planckian physics: Can CMB observations disentangle the two? *Phys. Rev.D*, **D 71** 103512 (2005) (gr-qc/0408034)
170. S.Ray, J.S.Bagla, **T. Padmanabhan** Gravitational Collapse in an Expanding Universe: Scaling Relations for Two-Dimensional Collapse Revisited *Mon. Not. Roy. Astron. Soc.*, **360**, 546, (2005), (astro-ph/0410041)
171. **T. Padmanabhan** Holographic Gravity and the Surface term in the Einstein-Hilbert Action, *Brazilian Jour.Phys.* (Special Issue) **35**, 362 (2005) (gr-qc/0412068)
172. **T. Padmanabhan** Vacuum Fluctuations of Energy Density can lead to the observed Cosmological Constant *Class.Quan.Grav.*, **22**, L107-L110, (2005) (hep-th/0406060)

⁵Selected by Thomson Essential Science Indicators for High Impact; see http://www.esi-topics.com/fbp/2005/october05-Choudhury_Padmanabhan.html

173. H.K.Jassal, J.S.Bagla, **T. Padmanabhan** Observational constraints on low redshift evolution of dark energy: How consistent are different observations? *Phys.Rev.* **D 72**, 103503 (2005) (astro-ph/0506748)
174. **T. Padmanabhan** A new perspective on Gravity and the dynamics of Spacetime *Int.J.Mod.Phys.*, **D14**,2263-2270 (2005). (gr-qc/0510015)

2006

175. Michele Fontanini, Euro Spallucci, **T. Padmanabhan** , Zero-point length from string fluctuations *Phys.Lett.*, **B633** 627-630 (2006) (hep-th/0509090)
176. Stuart Wyithe, **T. Padmanabhan** Properties of High Redshift Quasars-I: Evolution of the super-massive black-hole to halo mass ratio, *Mon.Not.Roy.Astron.Soc.*, **366**: 1029-1036 (2006) (astro-ph/0501330)
177. **T. Padmanabhan**, Challenges in Non-Linear Gravitational Clustering, *Les Comptes rendus (Physique)*, **7**, 350-359 (2006) [astro-ph/0512077]
178. Gaurang Mahajan, Sudipta Sarkar, **T. Padmanabhan**, Casimir Effect confronts Cosmological Constant *Phys.Letts.*, **B 641** : 6-10 (2006) [astro-ph/0604265]
179. **T.Padmanabhan**, Suryadeep Ray, Power transfer in nonlinear gravitational clustering and asymptotic universality, *Mon.Not.Roy.Astron.Soc.Letters*, **372**: L53-L57 (2006) [astro-ph/0511596]
180. **T. Padmanabhan**, Gravity: A New Holographic Perspective, *Int.J.Mod.Phys.*, **D 15**, 1659-1675 (2006) [gr-qc/0606061]
181. Aseem Paranjape, Sudipta Sarkar, **T. Padmanabhan**, Thermodynamic route to Field equations in Lanczos-Lovelock Gravity, *Phys.Rev.*, **D 74**, 104015 (2006) [hep-th/0607240]
182. Stuart Wyithe, **T. Padmanabhan**, What does the quasar luminosity function tell us about super-massive black-hole evolution? *Mon.Not.Roy.Astron.Soc.*, **372**: 1681-1691 (2006). [astro-ph/0603333]
183. **T. Padmanabhan**, Gravity's immunity from the vacuum: the holographic structure of semiclassical action *Gen.Rel.Grav.*, **38**, 1547-1552 (2006) ⁶
184. A. Mukhopadhyay, **T. Padmanabhan**, Holography of Gravitational Action Functionals *Phys.Rev.*, **D 74**, 124023 (2006) [hep-th/0608120]
185. **T. Padmanabhan**, Why Does Gravity Ignore the Vacuum Energy? *Int. J. Mod. Phys.*, **D 15**, 2029 (2006) [gr-qc/0609012].

2007

186. **T. Padmanabhan**, Aseem Paranjape, Entropy of Null Surfaces and Dynamics of Spacetime *Phys.Rev.* **D75** 064004, (2007) [gr-qc/0701003]

⁶Third Prize essay; Gravity Research Foundation Essay Contest, 2006

187. Dawood Kothawala, Sudipta Sarkar, **T. Padmanabhan**, Einstein's equations as a thermodynamic identity: The cases of stationary axisymmetric horizons and evolving spherically symmetric horizons. *Phys. Letts B* **652**, 338-342 (2007) [gr-qc/0701002]
188. Sudipta Sarkar, **T. Padmanabhan**, Thermodynamics of horizons from a dual quantum system, *Entropy*, **9**, 100-107 (2007) [gr-qc/0607042]
189. T.Roy Choudhury, **T. Padmanabhan**, Concept of temperature in multi-horizon space-times: Analysis of Schwarzschild-De Sitter metric, *Gen.Rel.Grav.*, **39**, 1789 (2007) [gr-qc/0404091]

2008

190. **T. Padmanabhan**, Dark Energy and Gravity , *Gen.Rel.Grav.*, **40**, 529-564 (2008) [arXiv:0705.2533]
191. C.M. Boily, **T. Padmanabhan**, A. Paiement, Black Hole Motion as Catalyst of Orbital Resonances, *Mon. Not. Roy. Ast. Soc.*, **383**, 1619 (2008) [arXiv:0705.2756]
192. **T. Padmanabhan**, From Gravitons to Gravity: Myths and Reality, *Int.J.Mod.Phys.*, **D 17**, 367-398 (2008) [gr-qc/0409089]
193. **T. Padmanabhan**, Gravity as an emergent phenomenon *Int.J.Mod.Phys.*, **D 17**, 591 (2008)
194. Gaurang Mahajan, **T. Padmanabhan**, Particle creation, classicality and related issues in quantum field theory: I. Formalism and toy models, *Gen. Rel. Grav.*, **40**, 661-708 (2008) [arXiv:0708.1233],
195. Gaurang Mahajan, **T. Padmanabhan**, Particle creation, classicality and related issues in quantum field theory: II. Examples from field theory, *Gen. Rel. Grav.*, **40**, 709-747 (2008) [arXiv:0708.1237]
196. **T. Padmanabhan**, Gravity - the Inside Story, *Gen. Rel. Grav.*, **40**, 2031-2036 (2008)
7
197. Dawood Kothawala, **T. Padmanabhan**, Sudipta Sarkar, Is gravitational entropy quantized ? *Phys. Rev.*, **D78**, 104018 (2008) [arXiv:0807.1481]

2009

198. **T. Padmanabhan**, Dark Energy and its Implications for Gravity, *Adv. Sci. Lett.*, **2**, 174 (2009) [arXiv:0807.2356]
199. Dawood Kothawala, **T. Padmanabhan**, Thermodynamic structure of Lanczos-Lovelock field equations from near-horizon symmetries *Phys.Rev.*, **D79**, 104020 (2009) [arXiv:0904.0215]
200. J.S. Bagla, Girish Kulkarni, **T. Padmanabhan**, Metal Enrichment and Reionization Constraints on Early Star Formation, *MNRAS* **379** , 971 (2009) [arXiv:0902.0853]

⁷First Prize essay; Gravity Research Foundation Essay Contest, 2008

201. Dawood Kothawala, L. Sriramkumar, S. Shankaranarayanan, **T. Padmanabhan**, Path integral duality modified propagators in spacetimes with constant curvature. *Phys.Rev.*, **D 79**, 104020 (2009) [arXiv:0904.3217]
202. Aseem Paranjape, **T. Padmanabhan**, Radiation from collapsing shells, semiclassical backreaction and black hole formation. *Phys.Rev.* **D 80**, 044011 (2009) [arXiv:0906.1768]
203. **T. Padmanabhan**, Entropy density of spacetime and gravity: A conceptual synthesis, *Int.Jour.Mod.Phys.* **D 18**, 2189-2193 (2009).

2010

204. **T. Padmanabhan**, Thermodynamical Aspects of Gravity: New insights, *Reports in Progress of Physics*, **73**, 046901 (2010) [arXiv:0911.5004]
205. **T. Padmanabhan**, Equipartition of energy in the horizon degrees of freedom and the emergence of gravity, *Mod.Phys.Letts.*, **A 25**, 1129-1136 (2010) [arXiv:0912.3165]
206. Hamsa Padmanabhan, **T. Padmanabhan**, Aspects of electrostatics in a weak gravitational field, *Gen.Rel.Grav.*, **42**, 1153-1181, (2010) [arXiv:0910.0926]
207. Dawood Kothawala, **T. Padmanabhan**, Response of Unruh-DeWitt detector with time-dependent acceleration, *Phys. Letts. B*, **690**, 201 (2010) [arXiv:0911.1017]
208. **T. Padmanabhan**, Surface Density of Spacetime Degrees of Freedom from Equipartition Law in theories of Gravity, *Phys.Rev.*, **D 81**, 124040 (2010) [arXiv:1003.5665]
209. H.K.Jassal, J.S.Bagla, **T. Padmanabhan**, The vanishing phantom menace, *MNRAS*, **405**, 2639 (2010) [astro-ph/0601389]
210. Sanved Kolekar, **T. Padmanabhan**, Holography in Action, *Phys.Rev.*, **D 82**, 024036 (2010) [arXiv:1005.0619]
211. **T. Padmanabhan**, Why Does the Universe Expand ?, *Gen.Rel.Grav.*, **42**, 2743-2750 (2010) [arXiv:1001.3380]
212. **T. Padmanabhan**, Finite entanglement entropy from the zero-point-area of spacetime, *Phys.Rev.*, **D 82**, 124025 (2010) [arXiv:1007.5066]
213. **T. Padmanabhan**, Equipartition of microscopic degrees of freedom, spacetime entropy and holography, *Int.Jour.Mod.Phys.* **D 19**, 2275-2280 (2010)

2011

214. **T. Padmanabhan**, Entropy density of spacetime and the Navier-Stokes fluid dynamics of null surfaces, *Phys.Rev.*, **D 83**, 044048 (2011) [arXiv:1012.0119]
215. Alexandre Yale, **T. Padmanabhan**, Structure of Lanczos-Lovelock Lagrangians in Critical Dimensions, *Gen.Rel.Grav.*, **43**, 1549 (2011) [arXiv:1008.5154]
216. Sanved Kolekar, **T. Padmanabhan**, Ideal Gas in a strong Gravitational field: Area dependence of Entropy, *Phys.Rev.*, **D 83**, 064034 (2011) [arXiv:1012.5421]

217. T. Roy Choudhury, **T. Padmanabhan**, Reply to Comment on ‘Quasi-normal modes in Schwarzschild-de Sitter spacetime: A simple derivation of the level spacing of the frequencies’ *Phys.Rev.*, **D 83**,108502 (2011) [arXiv:1105.6192]
218. **T. Padmanabhan**, Lessons from Classical Gravity about the Quantum Structure of Spacetime, *J.Phys. Conf.Ser.*, **306** 012001 (2011) [arXiv:1012.4476]
219. Hamsa Padmanabhan, **T. Padmanabhan**, Non-relativistic limit of quantum field theory in inertial and non-inertial frames and the Principle of Equivalence, *Phys.Rev.*, **D 84**, 085018 (2011) [arXiv:1110.1314]
220. **T. Padmanabhan**, Some aspects of field equations in generalized theories of gravity, *Phys.Rev.*, **D 84**, 124041 (2011) [arXiv:1109.3846]
221. **T. Padmanabhan**, The hydrodynamics of the atoms of spacetime: Gravitational field equation is Navier-Stokes equation, *Int.Jour.Mod.Phys.* **D20** 2817-2822 (2011)

2012

222. Sanved Kolekar, **T. Padmanabhan**, Action principle for the Fluid-Gravity correspondence and emergent gravity, *Phys.Rev.* **D85**, 024004 (2012) [arXiv:1109.5353]
223. Suprit Singh, **T. Padmanabhan**, Complex Effective Path: A Semi-Classical Probe of Quantum Effects, [arXiv:1112.6279], *Phys.Rev.* **D85**, 025011 (2012) [arXiv:1112.6279].
224. Sanved Kolekar, Dawood Kothawala, **T. Padmanabhan**, Two aspects of black hole entropy in Lanczos-Lovelock models of gravity, *Phys.Rev.* **D85**,064031 (2012) [arXiv:1111.0973]
225. Bibhas Ranjan Majhi, **T. Padmanabhan**, Noether Current, Horizon Virasoro Algebra and Entropy, *Phys.Rev.*, **D 85**, 084040 (2012) [arXiv:1111.1809]
226. Sanved Kolekar **T. Padmanabhan**, Sudipta Sarkar, Entropy increase during physical processes for black holes in Lanczos-Lovelock gravity, *Phys.Rev.*, **D 86**, 021501(R) (2012) [arXiv:1201.2947]
227. **T. Padmanabhan**, The secret life of the spacetime, [Fifth Prize essay; Gravity Research Foundation Essay Contest, 2012] *Int.Jour.Mod.Phys.* **D21**, 1241005-1 (2012)
228. **T. Padmanabhan**, Equipartition energy, Noether energy and boundary term in gravitational action *Gen.Rel.Grav*, **44**, 2681 (2012) [arXiv:1205.5683]
229. **T. Padmanabhan** , Emergent perspective of Gravity and Dark Energy *Res. Astro. Astrophys.*, **12**, 891 (2012) [arXiv:1207.0505]
230. **T. Padmanabhan**, Structural Aspects Of Gravitational Dynamics And The Emergent Perspective Of Gravity, *AIP Conf. Proc.*, **1483**, 212-238 (2012) [arXiv:1208.1375]
231. Bibhas Ranjan Majhi, **T. Padmanabhan**, Noether current from the surface term of gravitational action, Virasoro algebra and horizon entropy, *Phys.Rev.*, **D 86**, , 101501 (2012) [arXiv:1204.1422]

232. Sanved Kolekar, **T. Padmanabhan**, Drift, Drag and Brownian motion in the Davies-Unruh bath, *Phys.Rev.*, **D 86**, , 104057 (2012) [arXiv:1205.0258]

2013

233. Suprit Singh, Chandrima Ganguly, **T. Padmanabhan**, Quantum field theory in de Sitter and quasi-de Sitter spacetimes: Revisited, *Phys.Rev.*, **D 87**, 104004 (2013) [arXiv:1302.7177]
234. Krishnamohan Parattu, Bibhas Ranjan Majhi, **T. Padmanabhan**, The Structure of the Gravitational Action and its relation with Horizon Thermodynamics and Emergent Gravity Paradigm, *Phys.Rev.*, **D 87**, , 124011 (2013) [arXiv:1303.1535]
235. Review article: **T. Padmanabhan**, Dawood Kothawala, Lanczos-Lovelock models of gravity, *Phys.Repts.*, **531**, 115 , (2013) [arXiv:1302.2151]
236. Hamsa Padmanabhan, **T. Padmanabhan**, CosMIn: The solution to the cosmological constant problem, *Int.Jour.Mod.Phys*, **D 22**, 1342001 (2013) [arXiv:1302.3226]
237. Suprit Singh, Sujoy Kumar Modak, **T. Padmanabhan**, Evolution of quantum field, particle content and classicality in the three stage universe, *Phys.Rev.*, **D 88**, , 125020 (2013) [arXiv:1308.4976]
238. Bibhas Ranjan Majhi, **T. Padmanabhan**, Thermality and Heat Content of horizons from infinitesimal coordinate transformations, *Eur. Phys. J.*, **C 73** 12651 (2013) [arXiv:1302.1206]

2014

239. **T. Padmanabhan**, General relativity from a thermodynamic perspective,⁸ *Gen.Rel.Grav*, **46**, 1673 (2014) [arXiv:1312.3253]
240. **T. Padmanabhan**, A short note on the boundary term for the Hilbert action, *Mod. Phys. Letts.* **A, 29**, 1450037 (2014)
241. Sanved Kolekar, **T. Padmanabhan**, Quantum field theory in the Rindler-Rindler spacetime, *Phys. Rev.*, **D 89**, 064055 (2014) [arXiv:1309.4424]
242. **Review article: T. Padmanabhan**, Hamsa Padmanabhan, Cosmological constant from the emergent gravity perspective, *Int.Jour.Mod. Phys.*, **D 23**, 1430011(2014) [arXiv:1404.2284]
243. Prasant Samantray, **T. Padmanabhan**, Conformal symmetry, Rindler space, and the AdS/CFT correspondence, *Phys. Rev.*, **D 90**, 047502 (2014) [arXiv:1308.4667]
244. Krishnanand Mallayya, Rakesh Tibrewala, S. Shankaranarayanan, **T. Padmanabhan**, Zero modes and divergence of entanglement entropy, *Phys. Rev.*, **D 90**, 044058 (2014) [arXiv:1404.2079]

⁸Editor's Choice in GRG journal

245. **T. Padmanabhan**, What drives the time evolution of the spacetime geometry? ⁹, *Int.Jour.Mod.Phys.*, **D 23** 1441003 (2014) [arXiv:1405.5535]
246. Dawood Kothawala, **T. Padmanabhan**, Entropy density of spacetime as a relic from quantum gravity, *Phys. Rev.*, **D 90**, 124060 (2014) [arXiv:1405.4967]
247. Sumanta Chakraborty, **T. Padmanabhan**, Evolution of Spacetime arises due to the departure from Holographic Equipartition in all Lanczos-Lovelock Theories of Gravity, *Phys. Rev.*, **D 90**, 124017 (2014) [arXiv:1408.4679]
248. Sumanta Chakraborty, **T. Padmanabhan**, Geometrical variables with direct thermodynamic significance in Lanczos-Lovelock gravity, *Phys. Rev.*, **D 90**, 084021 (2014) [arXiv:1408.4791]

2015

249. Kinjalk Lochan, Krishnamohan Parattu, **T. Padmanabhan**, Quantum Evolution Leading to Classicality: A Concrete Example, *Gen. Rel. Grav.*, **47**, 1841 (2015) [arXiv:1404.2605]
250. **Review article: T. Padmanabhan**, Emergent Gravity Paradigm: Recent Progress, *Mod.Phys.Letts A* **30**, 1540007 (2015) [arXiv:1410.6285]
251. Kinjalk Lochan, **T. Padmanabhan**, Inertial non-vacuum states viewed from the Rindler frame, *Phys. Rev.* **D 91**, 044002 [arXiv:1411.7019]
252. Sumanta Chakraborty, Suprit Singh, **T. Padmanabhan**, A quantum peek inside the black hole event horizon, *JHEP*, **06**, 192 [arXiv:1503.01774]
253. Dawood Kothawala, **T. Padmanabhan**, Entropy density of spacetime from the zero point length, *Phys. Lett.*, **B 748**, 67 [arXiv:1408.3963]
254. **T. Padmanabhan**, Gravity in six elegant steps, *Int. Jour. Mod. Phys.*, **D 12** , 1544002 (2015)
255. Sanved Kolekar, **T. Padmanabhan**, Indistinguishability of thermal and quantum fluctuations, *Class. Quant. Grav.*, **32**, 202001 (2015) [arXiv:1308.6289]
256. Sumanta Chakraborty, Krishnamohan Parattu, **T. Padmanabhan**, Gravitational field equations near an arbitrary null surface expressed as a thermodynamic identity *JHEP*, **10**, 097 (2015) [arXiv:1505.05297]
257. **T. Padmanabhan**, Distribution function of the Atoms of Spacetime and the Nature of Gravity, *Entropy* **17**, 7420-7452 (2015) [arXiv:1508.06286]
258. Sumanta Chakraborty, **T. Padmanabhan**, Thermodynamical interpretation of the geometrical variables associated with null surfaces, *Phys. Rev.*, **D 92**, 104011 (2015) [arXiv:1508.04060]

⁹Third Prize essay; Gravity Research Foundation Essay Contest, 2014

259. **T. Padmanabhan**, Gravity and/is Thermodynamics, *Current Science*, **109**, 2236-2242 (2015) [arXiv:1512.06546]

2016

260. **T. Padmanabhan**, Momentum density of spacetime and the gravitational dynamics,¹⁰ *Gen. Rel. Grav. (Letts)*, **48**, 1-7 (2016) [arXiv:1506.03814]
261. Kinjalk Lochan, **T. Padmanabhan**, Extracting information about the initial state from the black hole radiation,¹¹ *Phys. Rev. Lett.*, **116**, 051301 (2016) [arXiv:1507.06402]
262. Krishnamohan Parattu, Sumanta Chakraborty, **T. Padmanabhan**, Variational Principle for Gravity with Null and Non-null boundaries: A Unified Boundary Counter-term, *Eur. Phys. J. C* **76**, 1-5 (2016) [arXiv:1602.07546]
263. **T. Padmanabhan**, Sumanta Chakraborty, Dawood Kothawala, Spacetime with zero point length is two-dimensional at the Planck scale, *Gen. Rel. Grav.*, **48**, 55 (2016) [arXiv:1507.05669]
264. **Review Article: T. Padmanabhan**, The Atoms Of Space, Gravity and the Cosmological Constant, *Int. Jour. Mod. Phys.*, **D 25**, 1630020 (2016) [arXiv:1603.08658]
265. Krishnamohan Parattu, Sumanta Chakraborty, Bibhas Ranjan Majhi, **T. Padmanabhan**, A Boundary Term for the Gravitational Action with Null Boundaries. *Gen. Rel. Grav.*, **48**, 94 (2016) [arXiv:1501.01053]
266. Kinjalk Lochan, Sumanta Chakraborty, **T. Padmanabhan**, Information retrieval from black holes, *Phys. Rev.*, **D 94**, 044056 (2016) [arXiv:1604.04987]
267. Sumanta Chakraborty, Sourav Bhattacharya, **T. Padmanabhan**, Entropy of a generic null surface from its associated Virasoro algebra, *Phys. Lett. B*, **763**, 347 (2016) [arXiv:1605.06988]

2017

268. **T. Padmanabhan**, Do We Really Understand the Cosmos?, *Comptes rendus - Physique*, **18** (2017) 275-291 [arXiv:1611.03505]
269. **T. Padmanabhan**, The atoms of spacetime and the cosmological constant, *Journal of Physics: Conf. Series*, **880** (2017) 012008, [arXiv:1702.06136]
270. **T. Padmanabhan**, Hamsa Padmanabhan, Cosmic Information, the Cosmological Constant and the Amplitude of primordial perturbations, *Phys. Letts. B*, **773** (2017) 8185 [arXiv:1703.06144]
271. Sumanta Chakraborty, Krishnamohan Parattu, **T. Padmanabhan**, A Novel Derivation of the Boundary Term for the Action in Lanczos-Lovelock Gravity, *Gen. Rel. Grav.* **49**, (2017) 121 (DOI 10.1007/s10714-017-2289-5) [arXiv:1703.00624]

¹⁰Editor's Choice in GRG journal

¹¹Editor's Selection in Phys.Rev.Lett.

272. **T. Padmanabhan**, Hamsa Padmanabhan, Quantum gravity at Hubble scales determines the cosmological constant and the amplitude of primordial perturbations, *Int. Jour. Mod. Phys.*, **D 26** (2017) 1743002
273. Sourav Bhattacharya, Sumanta Chakraborty, **T. Padmanabhan**, Entropy of a box of gas in an external gravitational field revisited, *Phys. Rev. D* **96** (2017) 084030 [arXiv:1702.08723]

2018

274. **T. Padmanabhan**, Demystifying the constancy of the Ermakov-Lewis invariant for a time-dependent oscillator, *Mod. Phys. Letts*, **A 33** (2018) 1830005 [arXiv:1712.07328]
275. Kinjalk Lochan, Sumanta Chakraborty, **T. Padmanabhan**, Unruh effect for inertial observers through vacuum correlations, *Eur. Phys. J. C*, **78**, 433 (2018) [arXiv:1603.01964]
276. **T. Padmanabhan**, Obtaining the non-relativistic quantum mechanics from quantum field theory: issues, folklores and facts, *Eur. Phys. J. C*, **78**, 563 (2018) [arXiv:1712.06605]
277. **T. Padmanabhan**, The kinetic theory of the mesoscopic spacetime,¹² *Int. Jour. Mod. Phys.*, **D 27**, 1846004 (2018) [arXiv:1805.07218]
278. Karthik Rajeev, Sumanta Chakraborty, **T. Padmanabhan**, Inverting a normal harmonic oscillator: physical interpretation and applications, *Gen. Rel. Grav.*, **50**, 116 (2018) [arXiv:1712.06617]
279. Kinjalk Lochan, Karthik Rajeev, Amit Vikram, **T. Padmanabhan**, Quantum Correlators in Friedmann Spacetimes -The omnipresent de Sitter and the invariant vacuum noise, *Phys. Rev.*, **D 98**, 105015 (2018) [arXiv:1805.08800]
280. Karthik Rajeev, Sumanta Chakraborty, **T. Padmanabhan**, A comment on generalized Schwinger effect, *Eur. Phys. J. C* **78**, 836 (2018) [arXiv:1712.06621]

2019

281. Karthik Rajeev, Sumanta Chakraborty, **T. Padmanabhan**, Generalized Schwinger effect and particle production in an expanding universe, *Phys. Rev.*, **D 100**, 045019 (2019) [arXiv:1904.03207]
282. **T. Padmanabhan**, Thermalality of the Rindler horizon: A simple derivation from the structure of the inertial propagator, *Phys. Rev.*, **D 100**, 045024 (2019) [arXiv:1905.08263]
283. **T. Padmanabhan**, A measure for quantum paths, gravity and spacetime microstructure *Int. Jour. Mod. Phys.*, **D 1944009** (2019) [arXiv:1908.10872]

2020

284. **Review Article: T. Padmanabhan**, Gravity and Quantum Theory: Domains of Conflict and Contact, *Int. Jour. Mod. Phys.*, **D 2030001** (2020) [arXiv:1909.02015]

¹²Fourth Prize essay; Gravity Research Foundation Essay Contest, 2018

285. Sumanta Chakraborty, **T. Padmanabhan**, Boundary Term in the Gravitational Action is the Heat Content of the Null surfaces, *Phys. Rev.*, **D 101**, 064023 (2020) [arXiv:1909.00096]
286. **T. Padmanabhan**, Geodesic distance: A descriptor of geometry and correlator of pregeometric density of spacetime events, *Modern Physics Letters*, **A 35**, 2030008 (2020) [arXiv:1911.02030]
287. **T. Padmanabhan**, Principle of equivalence at Planck scales and the zero-point length of spacetime: A synergistic description of quantum matter and geometry¹³, *Int. Jour. Mod. Phys.*, **D 29**, 2042005 (2020)
288. **T. Padmanabhan**, Planck length: Lost + found, *Phys. Letts.*, **B 809**, 135774 (2020)
289. **T. Padmanabhan**, Principle of equivalence at Planck scales, QG in locally inertial frames and the zero-point-length of spacetime, *Gen Relativ Gravit*, **52** 90 (2020) [arXiv:2005.09677]

¹³Fifth Prize essay; Gravity Research Foundation Essay Contest, 2020