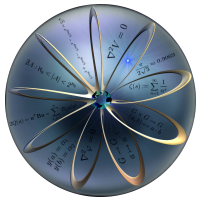

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topic on applied mathematical physics and physical mathematics

Canonical name	TopicOnAppliedMathematicalPhysicsAndPhysicalMathematics
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Classification	msc 65-00
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Classification	msc 60-00
Related topic	QuantumAutomataAndQuantumComputation2
Related topic	CategoryOfQuantumAutomata
Related topic	MathematicalBiology
Related topic	BibliographyForMathematicalBiophysics
Related topic	CAlgebra3
Related topic	AbstractRelationalBiology

This is a new topic entry on mathematical physics and applied mathematics.

1 Topic on applied mathematical physics/physical mathematics

1. Non-equilibrium thermodynamics and statistical mechanics
2. Theoretical geophysics and physico-mathematical models in geophysics
3. Astrophysics, cosmology, geometrodynamics and general relativity theories
4. Quantum gravity
5. Quantum logics, including LM-logic algebras
6. Quantum state spaces, quantum operators, superoperators, observables, eigenstates
7. Hamiltonians and other Hermitian operators
8. `http://planetmath.org/AlgebraicQuantumFieldTheoriesAQFT`Algebraic quantum field theory (AQFT)
9. Quantum algebraic topology
10. Quantum operator algebra (QOA) in quantum field theories and quantum gravity
11. Quantum groups, Hopf algebras, quantum supergroups and superalgebras
12. Topological quantum field theories (TQFT)
13. Homotopy quantum field theories (HQFT)
14. Non-Abelian physics
15. Unified field theories in physics, supersymmetry and spontaneous symmetry breaking

16. CPT symmetry and Parity violation

17. Quantum chromodynamics (QCD): quarks, parton distributions, nuclear spin structures and theories of Nuclear Fusion

18. Elementary particle theories and Higgs bosons

19. Quantum geometry and non-commutative geometry applications to SUSY model in physics

20. Harmonic and `http://www.physics.orst.edu/ rubin/nacphy/ComPhys/classical/anhar` analysis of quantum systems

21. `http://planetmath.org/BibliographyForMathematicalPhysicsFoundationsAxiomatics` for mathematical physics and quantum algebraic topology

22. Geometry and group theory applications to mathematical crystallography

23. Spinors and spin groups: spin networks, spin foams, vectors, matrices, tensors and twistors

24. Complex systems structure (CSS) and dynamics (CSD)

25. Solitons and semi-classical systems

26. Systems with Chaos

27. Topological dynamics

28. Biotopology and topology applications in biology, non-random Networks: cellular, neural and genetic

29. Fluid dynamics, including aerodynamic and vorticity field models with applications in Aeronautics, rocketry and space exploration (NASA, etc.)

30. Superfluids and superconductivity: low- and high- temperature mechanisms

31. Non-crystalline systems, paracrystals and glasses

32. Categorical physics and categories/supercategories in biology

33. Categorical dynamics and biodynamics
34. Physical vs. mathematical probability
35. Applied statistical mechanics
36. Numerical analysis and measurement theory in physics
37. Biostatistics
38. Bibliography for statistical mechanics
39. Bibliography for mathematical physics and quantum algebraic topology
40. Computational physics and astrophysics
41. Computer models and automata theory in biology and medicine
42. Mathematical medicine and epidemiological models
43. Quantum automata and quantum Computers
44. quantum nanoautomata and nanorobots
45. Mathematics in natural/life sciences
46. Mathematical biology and theoretical biophysics
47. Mathematical biophysics
48. Bibliography for mathematical biophysics
49. Mathematics of finance and market predictions
50. Mathematical and mathematical physics applications to population genetics
51. Quantum genetics and bioinformatics
52. Mathematics and mathematical physics applications in electrical engineering and bioengineering
53. Mathematical physics and physical mathematics models applications in geophysics and ecology

54. Mathematical physics and physical mathematics models in energy science and engineering, alternative energy mathematical models and theories