

Book list

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Abstract

This is a continuously evolving list of references which may be relevant to the Stony Brook RTG program in Geometry and Physics. Anyone with any suggestions for additions is encouraged to email them to wdlinch3@math.sunysb.edu. Solid bullets (●) indicate that we have the reference in our RTG collection available in Math 6-101. Asterisks (*) indicate the reference is available in electronic format. For completeness, some references are provided which are not available online and which have not (yet) been purchased for the RTG library. These are indicated with a circle (○).

1 Physics

1.1 Strings

- M. B. Green, J. H. Schwarz and E. Witten, "SUPERSTRING THEORY. VOL. 1: INTRODUCTION," SPIRES entry
- M. B. Green, J. H. Schwarz and E. Witten, "Superstring Theory. Vol. 2: Loop Amplitudes, Anomalies And Phenomenology," SPIRES entry
Cambridge, UK: Univ. Pr. (1987) 596 P. (Cambridge Monographs On Mathematical Physics) Cambridge, UK: Univ. Pr. (1987) 469 P. (Cambridge Monographs On Mathematical Physics)
- J. Polchinski, "String theory. Vol. 1: An introduction to the bosonic string," SPIRES entry
Cambridge, UK: Univ. Pr. (1998) 402 p
- J. Polchinski, "String theory. Vol. 2: Superstring theory and beyond," SPIRES entry
Cambridge, UK: Univ. Pr. (1998) 531 p

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1.2 Quantum Field and Gauge Theory

- * W. Siegel, “Fields,” arXiv:hep-th/9912205.
- M. Srednicki, “Quantum field theory,” SPIRES entry *Cambridge, UK: Univ. Pr. (2007) 641 p*
- M. Henneaux and C. Teitelboim, “Quantization of gauge systems,” SPIRES entry *Princeton, USA: Univ. Pr. (1992) 520 p*
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1.3 Supersymmetry

- I. L. Buchbinder and S. M. Kuzenko, “Ideas and methods of supersymmetry and supergravity: A Walk through superspace,” SPIRES entry *Bristol, UK: IOP (1995) 640 p*
- * S. J. Gates, M. T. Grisaru, M. Rocek and W. Siegel, “Superspace, or one thousand and one lessons in supersymmetry,” *Front. Phys.* **58**, 1 (1983) [arXiv:hep-th/0108200].
- B. S. DeWitt, “Supermanifolds,” SPIRES entry *Cambridge, UK: Univ. Pr. (1992) 407 p. (Cambridge monographs on mathematical physics). (2nd ed.)*,
- S. Duplij, W. Siegel and J. Bagger, “Concise Encyclopedia of Supersymmetry: And Noncommutative Structures in Mathematics and Physics,” SPIRES entry
- V. S. Varadarajan, “Supersymmetry for mathematicians: An introduction,” SPIRES entry *New York, USA: Courant Inst. Math. Sci. (2004) 300 p*
- D. S. Freed, “Five lectures on supersymmetry,” SPIRES entry *Providence, USA: AMS (1999) 119 p*

1.4 Gravitation

- R. M. Wald, “General Relativity,” SPIRES entry *Chicago, Usa: Univ. Pr. (1984) 491p*
- C. W. Misner, K. S. Thorne and J. A. Wheeler, “Gravitation,” SPIRES entry *San Francisco 1973, 1279p*
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2 Mathematical Physics

2.1 Introductory

- V. I. Arnold, “Mathematical methods of classical mechanics,” *Springer-Verlag, GTM 60, 1978*.
- B. A. Dubrovin, A. T. Fomenko, S. P. Novikov, “Modern Geometry - Methods and Applications: Part I: The Geometry of Surfaces, Transformation Groups, and Fields,” *Springer-Verlag, GTM 93, Part 1, 1984*.
- B. A. Dubrovin, A. T. Fomenko, S. P. Novikov, “Modern Geometry - Methods and Applications: Part II: Part 2: The Geometry and Topology of Manifolds,” *Springer-Verlag, GTM 104, Part 2, 1985*.
- B. A. Dubrovin, A. T. Fomenko, S. P. Novikov, “Modern Geometry - Methods and Applications: Part III: Introduction to Homology Theory,” *Springer-Verlag, GTM 124, Part 3, 1990*.
- M. Nakahara, “Geometry, topology and physics,” SPIRES entry *Boca Raton, USA: Taylor & Francis (2003) 573 p*
- L. Takhtajan, “Quantum Mechanics for Mathematicians,” *Amer. Math. Soc. ‘Graduate Studies in Mathematics’ vol. 95, 2008*.

2.2 Strings

- P. Deligne *et al.*, “Quantum fields and strings: A course for mathematicians. Vol. 1, 2,” SPIRES entry *Providence, USA: AMS (1999) 1-1501*
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2.3 Mirror Symmetry/TQFT/...

- K. Hori *et al.*, “Mirror symmetry,” SPIRES entry *Providence, USA: AMS (2003) 929 p*
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3 Physical Mathematics

- P. G. Bamberg and S. Sternberg, “A Course in Mathematics for Students of Physics 1, 2” *Cambridge University Press (1988)*
- T. Frankel, “The geometry of physics: An introduction,” SPIRES entry *Cambridge, UK: Univ. Pr. (1997) 654 p*

- J. Q. Chen, J. L. Ping and F. Wang, “Group Representation Theory For Physicists,” SPIRES entry *River Edge, USA: World Scientific (2002)* 574 p