Sources on quantum large deviations

Hugo Touchette
National Institute for Theoretical Physics (NITheP), Stellenbosch, South Africa

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Please contact me if you have any relevant references to add.

1. Early works

1.1. Bosons

- J. T. Lewis. Why do bosons condense? In T. C. Dorlas, N. M. Hugenholtz, M. Winnink, and J. T. Lewis, editors, *Statistical Mechanics and Field Theory: Mathematical Aspects*, volume 257 of *Lecture Notes in Physics*, pages 234–256. Springer, Berlin, 1986. Available from: http://dx.doi.org/10.1007/3-540-16777-3_80
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- M. Berg, T. C. Dorlas, J. T. Lewis, and J. V. Pulé. A perturbed mean field model of an interacting boson gas and the large deviation principle. *Comm. Math. Phys.*, 127(1):41–69, 1990. Available from: http://dx.doi.org/10.1007/BF02096493
- John T. Lewis's work is important historically: he is one of the very few physicists in the 80s who realized that large deviations were useful and fundamental to statistical physics. Link to his obituary

1.2. Quantum spins (and other systems)

- W. Cegla, J. T. Lewis, and G. A. Raggio. The free energy of quantum spin systems and large deviations. *Comm. Math. Phys.*, 118(2):337–354, 1988. Available from: http://projecteuclid.org/euclid.cmp/1104161992
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- M. Lenci. *Classical Billiards and Quantum Large Deviations*. PhD thesis, Rutgers University, New Brunswick, N.J., 1999
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1.3. Freidlin-Wentzell-like approach

- P. Blanchard, P. Combe, M. Sirugue, and M. Sirugue-Collin. Estimates of quantum deviations from classical mechanics using large deviation results. In *Quantum Probability*

and Applications II, volume 1136 of *Lecture Notes in Mathematics*, pages 104–111. Springer, 1985. Available from: http://dx.doi.org/10.1007/BFb0074464

2. More recent works

2.1. Quantum state estimation, coding and information

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- R. Ahlswede and V. M. Blinovsky. Large deviations in quantum information theory. *Prob. Info. Trans.*, 39(4):373–379, 2003. Available from: http://dx.doi.org/10.1023/B:PRIT.0000011275.66657.5a
- I. Bjelaković, T. Krüger, R. Siegmund-Schultze, and A. Szkoła. The Shannon-McMillan theorem for ergodic quantum lattice systems. *Invent. math.*, 155(1):203–222, 2004. Available from: http://dx.doi.org/10.1007/s00222-003-0318-3
- I. Bjelaković, J.-D. Deuschel, T. Krüger, R. Seiler, R. Siegmund-Schultze, and A. Szkola. A quantum version of Sanov's Theorem. *Comm. Math. Phys.*, 260(3):659–671, 2005. Available from: http://dx.doi.org/10.1007/s00220-005-1426-2
- M. Keyl. Quantum state estimation and large deviations. *Rev. Math. Phys.*, 18(1):19–60, 2006
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- Website of Ruedi Seiler

2.2. Quantum models

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2.4. Others

- I. Bjelaković, J.-D. Deuschel, T. Krüger, R. Seiler, R. Siegmund-Schultze, and A. Szkola. Typical support and Sanov large deviations of correlated states. *Comm. Math. Phys.*, 279(2):559–584, 2008. Available from: http://dx.doi.org/10.1007/s00220-008-0440-6
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  [Quantum version of level-1 large deviations for the counting current based on the Lindblad operator.]