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First and second order Viriel coefficients for a gas of anyons

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In this work, we study, using numerical -Monte Carlo- simulations, quantum properties of a gas of anyons with a topological-type interaction in finite three dimensional space-time. This model is an effective description of the Abelian Higgs model with the Chern-Simons theories. The effective anyon gas with topological-type interaction is already constructed and developped in the lattice in [1;2]. In the present work, we add two anyons travelling the time direction of the lattice and compute the first and second order Viriel coefficients of the model. We present our numerical computations and analyse the Data.
References:
[1] R. MacKenzie, F. Nebia-Rahal, and M.B. Paranjape, Phys. Rev. D 81,114505 (2010).
[2] R. MacKenzie, F. Nebia-Rahal, M. B. Paranjape, J. Richer, Phys. Rev. D 82, 074506 (2010).

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