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Quantum Monte Carlo Studies of Luttinger Liquids ADRIAN DEL MAESTRO, University of British Columbia — An experimental realization of a bosonic Luttinger liquid may possibly be found in systems where helium-4 has been confined to narrow nanopores with large aspect ratios. We have employed worm algorithm path integral quantum Monte Carlo methods to study low dimensional strongly interacting bosonic systems at finite temperature in the grand canonical ensemble. The resulting numerical data can be used in conjunction with scaling predictions from Luttinger liquid theory to aid in the experimental search.

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