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Comparison of algorithms for solving the sign problem of the finite μ O(3) model in 1+1 dimensions

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We study the 1+1 dimensional nonlinear O(3) model at finite chemical potential using the complex Langevin algorithm and the worm algorithm. In the latter the sign problem is totally eliminated. We determine the range of parameters, where complex Langevin produces correct results and study whether taking the continuum limit allows the exploration of the full phase diagram of the model.

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