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The three-dimensional XY model at finite chemical potential using complex Langevin dynamics

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The three-dimensional XY model is studied at finite chemical potential using complex Langevin dynamics. The validity of the approach is probed at small chemical potential using imaginary chemical potential and continuity arguments, and at larger chemical potential by comparison with the world line method. While complex Langevin works for larger beta, we find that it fails for smaller beta, in the region of the phase diagram corresponding to the disordered phase.

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Talk

Primary author: JAMES, Frank (Swansea University)

Presenter: JAMES, Frank (Swansea University)

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