

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Criticality of compact and noncompact $(1+1)D$ quantum dissipative Z_4 -models EINAR STIANSEN, IVER SPERSTAD, ASLE SUDBO, Norwegian University of Science and Technology — We study two versions of a $(1+1)D$ Z_4 -symmetric model with Ohmic bond dissipation. In one version the phase variable is restricted to the interval $[0, 2\pi)$, while the domain is unrestricted in the other. The compact model features a completely ordered phase with a broken Z_4 -symmetry and a disordered phase, separated by a critical line. The non-compact model features three phases. In addition to the two phases exhibited by the compact model, there is also an intermediate phase, characterized by isotropic power-law phase correlations. We calculate the dynamical critical exponent z along the critical lines of both models to see if the compactness of the variable is relevant to the critical scaling between space and imaginary time. We find $z \approx 1$ for the single phase transition in the compact model as well as for both transitions in the non-compact model.

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Date submitted: 19 Nov 2010

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