

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Theory of a smeared quantum phase transition¹ JOSE HOYOS,
Duke University, THOMAS VOJTA, University of Missouri-Rolla — We present a
comprehensive strong-disorder renormalization group theory of the quantum phase
transition in the dissipative random quantum Ising chain. For Ohmic dissipation, we
solve the renormalization group flow equations analytically, yielding asymptotically
exact results for the low-temperature properties of the system. We find that the in-
terplay between quantum fluctuations and Ohmic dissipation destroys the quantum
critical point by smearing. We also determine the phase diagram and the behavior
of observables in the vicinity of the smeared quantum phase transition.

¹Supported by NSF and Reseach Cooperation

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Date submitted: 26 Nov 2007

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