Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Effects of dissipation on a quantum critical point with disorder THOMAS VOJTA, University of Missouri-Rolla, JOSE HOYOS, Duke University, CHETAN KOTABAGE, University of Missouri-Rolla — We study the effects of dissipation on a disordered quantum phase transition with O(N) order parameter symmetry by applying a strong-disorder renormalization group to the Landau-Ginzburg-Wilson field theory of the problem. We find that Ohmic dissipation results in a non-perturbative infinite-randomness critical point with unconventional activated dynamical scaling while superohmic damping leads to conventional behavior. We discuss applications to the superconductor-metal transition in nanowires and to Hertz' theory of the itinerant antiferromagnetic transition.

Thomas Vojta
University of Missouri-Rolla

Date submitted: 26 Nov 2007 Electronic form version 1.4