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Improved Lattice Renormalization Group Techniques GREGORY PETROPOULOS, ANQI CHENG, ANNA HASENFRATZ, DAVID SCHAICH, University of Colorado Boulder — Finding the renormalization group (RG) properties of quantum field theories is useful to understand conformal and nearly conformal quantum field theories. Monte Carlo Renormalization Group (MCRG) methods are an effective way of determining the bare step scaling function non perturbatively. In this talk I present an improvement to traditional MCRG that makes more robust predictions. Our method finds the beta function by using wilson flow to approach the renormalized trajectory determined by a unique RG transformation. By optimizing the extent of the wilson flow for different couplings we can find a unique beta function. We applied our renormalization group techniques to SU(3) gauge theories with 8 and 12 flavors in the chiral limit and found an infrared fixed point in the 12 flavor case.

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