

**RENORMALIZATION GROUP ANALYSIS OF A SELF-ORGANIZED  
CRITICAL SYSTEM: INTRINSIC ANISOTROPY VS RANDOM  
ENVIRONMENT**

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We study the model of anisotropic self-organized critical system introduced by Hwa and Kardar coupled to an isotropic random fluid environment. The problem is represented as a field theoretic model, which is shown to be multiplicatively renormalizable. Using the field-theoretic renormalization group, we find infrared attractive fixed points of the renormalization group equation associated with universality classes, i.e., with regimes of critical behavior. Depending on what terms (anisotropic, isotropic, or both) and which type of energy injection are relevant in specific universality class, different types of scaling behavior (ordinary one or generalized) are established.

**References**

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