1067-82-218   **Mei Yin*** (`emma_yin@hotmail.com`), 1 University Station C1200, Austin, TX 78712. *A Cluster Expansion Approach to Renormalization Group Transformations.*

The renormalization group (RG) approach is largely responsible for the considerable success achieved in developing a quantitative theory of phase transitions. This work treats the rigorous definition of the RG map for Ising-type classical lattice systems. A cluster expansion is used to justify the existence of the linearization of the renormalized interaction in the infinite volume limit at high temperature. This expansion is derived from the formal expressions, but it is itself well-defined and convergent. (Received August 07, 2010)