

HIERARCHICAL MODELS: ARE THEY USEFUL?

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The hierarchical spherical model is investigated at the critical point by solving the underlying evolution equation, corresponding to the renormalization group transformation in the limit as the block size goes to 1. Some limit theorems can be obtained following the trajectories of this PDE equation. Starting far away from the stationary Gaussian fixed point, an interpretation of the critical trajectory is given in terms of the geometric theory of functions which describes the motion of the Lee-Yang zeros under the scale transformation.