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Exact Phi4 Critical Exponents via the Limit of Finite Periodic Systems ANTHONY HEGG, PHILIP PHILLIPS, University of Illinois at Urbana-Champaign — We formulate an RG procedure to nonperturbatively calculate the critical exponents of phi4 theory in arbitrary dimension. Our method first calculates the exact RG equations for a finite but arbitrarily large system with periodic boundary. We then take the limit as that boundary diverges to simplify the equations and recover a true critical point of the system. In particular this provides the 3d critical Ising exponents to high precision. This method is not specific to phi4 theory and thus should apply to many other systems.

Anthony Hegg
University of Illinois at Urbana-Champaign

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