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The meanfield laboratory to study five-dimensional gauge theories

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We present results from a meanfield expansion around a non-trivial background in five-dimensional SU(2) gauge theory. The physics goals are the study of dimensional reduction and spontaneous symmetry breaking. On the torus the meanfield expansion shows a second order phase transition in the non-compact regime, where the anisotropy becomes a relevant parameter. Dimensional reduction and effects of confinement are demonstrated. We show a comparision
to results from Monte Carlo simulations. Finally we describe the case of the orbifold geometry, where spontaneous symmetry breaking can occur.

Presenter: KNECHTLI, Francesco (Bergische Universitaet Wuppertal)