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Ouverture to lattice study of supersymmetric gauge theories

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We report our recent results concerning the realization of supersymmetric gauge theory on the lattice. Specifically, we present a clear numerical evidence in a lattice formulation of 2D N=(2,2) supersymmetric Yang-Mills theory that supersymmetry Ward-Takahashi identities, which are broken by the lattice regularization, are restored in the continuum limit without fine tuning. As "physical application" of the formulation, we consider numerical measurement of the vacuum energy of the system which provides an order parameter of the spontaneous supersymmetry breaking.

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