

Z(2)-symmetric center vortex model with a first-order deconfinement transition

Presenter: Michael Engelhardt (Physics Dept., NMSU)

M.Engelhardt and B.Sperisen

Abstract: Motivated by recent lattice studies of Yang-Mills theories with gauge groups other than $SU(N)$, a random vortex world-surface model for the infrared sector of $Sp(2)$ Yang-Mills theory is constructed. The $Sp(2)$ gauge group, while allowing for the same set of center vortex fluxes as the $SU(2)$ gauge group, induces a significantly different dynamics on those vortex fluxes, which manifests itself in a first-order deconfinement phase transition. As shown by the construction presented here, a new vortex effective action term which can be interpreted in terms of a vortex stickiness can be used to drive the deconfinement transition towards first-order behavior.