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Why there is no confinement when vortices proliferate but monopoles do not

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Two competing pictures of the confinement mechanism in 3+1D non-abelian gauge theory have been the proliferation of center vortices and the proliferation of magnetic monopoles. In this talk, I will provide a unified and surprising picture of confinement, which clarifies some confusion in the literature concerning the role of vortices. In particular, I will argue that whereas the simultaneous proliferation of vortices and monopoles leads to the gapped confining phase, vortex proliferation without monopole proliferation leads not to confinement but to a gapless Coulomb phase.

Parallel Session (for talks only)

Vacuum structure and confinement

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