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Centre Vortex Structure in 2+1 Flavour QCD

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This presentation introduces new insights into the centre-vortex structure of lattice gauge fields, this time exploring the influence of dynamical fermions in the full-QCD vacuum. Calculations of both the Landau-gauge gluon propagator and the static quark potential reveal notable differences in the vortex phenomenology of pure-gauge and full-QCD simulations. Remarkably, configurations composed of centre-vortices alone have the ability to reproduce the static quark potential of full QCD. Moreover, the distribution of vortices in the vacuum is altered significantly with the introduction of dynamical fermions. Together, these results report the substantial influence of dynamical fermions on the centre-vortex structure of QCD-vacuum fields.

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