

The emergent origin of mass

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Where does your mass come from? One possible answer is the Higgs boson, but the Higgs mechanism only accounts for 1% of the mass of the proton and neutron. The other 99% is a result of the highly complex interactions between quarks and gluons. Quantum chromodynamics (QCD) is the fundamental theory that describes the strong force governing quarks and gluons. It is natural then to ask if there is some fundamental property of QCD that describes the origin of mass. We reveal how objects known as centre vortices provide a mechanism that connects emergent phenomena such as quark confinement and dynamical mass generation with the QCD vacuum state.