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Anomalous kaon correlations measured in Pb-Pb collisions at the LHC as evidence for the melting and refreezing of the QCD vacuum

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Measurements of the dynamical correlations between neutral and charged kaons in central Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV by the ALICE Collaboration display anomalous behavior relative to conventional heavy-ion collision simulators. We consider other conventional statistical models, none of which can reproduce the magnitude and centrality dependence of the correlations. The data can be reproduced by either strange Disoriented Chiral Condensates or by non-strange Disoriented Isospin Condensates from domains which grow in number and volume with increasing centrality.

Both mechanisms are associated with the melting and refreezing of the QCD vacuum.

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