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Uncovering new physics through two-particle angular correlations in high-energy collisions

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Long-range angular correlations among particles may uncover physics
beyond the Standard Model, such as Hidden Valley (HV) scenarios. We particularly investigate a QCD-like sector, where HV matter coupled with QCD partonic cascades, may enhance azimuthal correlations among final-state particles. Our examination at the detector level concentrates on discerning these signals at future e+e- colliders, which provide a cleaner experimental setting than the Large Hadron Collider (LHC). Particularly, the detection of ridge formations in the two-particle correlation function could suggest the existence of new physics phenomena.

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