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Dilaton chiral perturbation theory and applications

We review dilaton chiral perturbation theory (dChPT), the effective low-energy theory for the light sector of near-conformal, confining theories. dChPT provides a systematic expansion in both the fermion mass and the distance to the conformal window. It accounts for the pions and the light scalar, the approximate Nambu-Goldstone bosons for chiral and scale symmetry, respectively. A unique feature of dChPT is the existence of a large-mass regime in which the theory exhibits approximate hyperscaling, while the expansion nevertheless remains systematic.

We discuss applications to lattice data, presenting successes as well as directions for future work.

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