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QCD with fundamental and adjoint matter

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Strongly-coupled gauge theories with fermions and/or scalars in mixed representations are endowed with a wealth of intricate phase structures. In this talk, I discuss the faithful global symmetries and 't Hooft anomalies of Quantum Chromodynamics (QCD) with matter in the fundamental-adjoint mixed representation. Then, I show how one can utilize the anomalies and effective field theory techniques to construct the infrared phase diagrams of this class of theories. The discussion covers the implications of the limiting scenarios of heavy adjoint or fundamentals, which align neatly with our current understanding of QCD with solely fundamental or adjoint matter.

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