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On loops in inflation: CMB bounds on the field content of the universe.

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Hidden fields present during single-field inflation can affect CMB observables through quantum vacuum fluctuations. Besides the renormalization of background quantities, loop corrections of these fields induce Planck-suppressed logarithmic runnings in correlation functions of curvature and tensor perturbations. In this talk we consider the impact of a large number of such field degrees of freedom on inflationary observables, and show that one can extract bounds on the hidden field content of the universe from bounds on violations of the consistency relation. Our approach will be based on the 1-loop effective action, and we shall show how this can shortcut the computation of diagrams in the effective theory of inflation involving loops of particles of arbitrary spin.

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