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Strong coupling constant in (2+1+1)-flavor QCD

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The strong coupling constant α_s can be obtained from the static energy as shown in previous lattices studies. For short distances, the static energy can be calculated both on the lattice with the use of Wilson line correlators, and with the perturbation theory up to three loop accuracy with leading ultrasoft log resummation. Comparing the perturbative expression and lattice data allows for precise measurement of α_s . We will present preliminary results for the determination of α_s in (2+1+1)-flavor QCD using the configurations made available by the MILC-collaboration with smallest lattice spacing reaching 0.0321fm.

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