Effects of the disconnected flavor singlet corrections on the hyperfine splitting in charmonium

Presenter: Ludmila Levkova — University of Utah

Experimentally the charmonium hyperfine splitting is $M_{J/\Psi} - M_{\eta_c} = 117$ MeV and current lattice results are generally below this value. The difference could be due to the effects of the disconnected flavor singlet diagrams which have not been included in these calculations. Previous attempts to determine the disconnected flavor singlet corrections have lead just to rough estimates of about 20 MeV. We present preliminary results for these corrections calculated on fine ($a \approx 0.09$ fm) Asqtad 2+1 flavor lattices.