Precision Study of $B^*B\pi$ Coupling for the Static Heavy-light Meson

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We compute the $B^*B\pi$ coupling $\hat{g}_\infty$ for the static heavy-light meson using all-to-all propagators. It is shown that low-mode averaging with 100 low-lying eigenmodes indeed significantly improves the signal for the 2-point and 3-point functions for heavy-light meson. Our study suggests that the all-to-all propagator is a very efficient method for the high precision computation of the $B^*B\pi$ coupling, especially in unquenched QCD, where the number of configurations is limited.

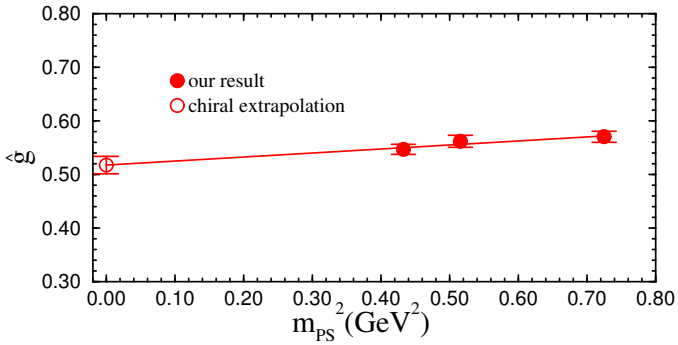

Figure 1: $\hat{g}_\infty$ for $\kappa = 0.1335$, 0.1340, and 0.1342, together with the result in the chiral limit obtained by linear extrapolation in $(am_\pi)^2$.

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