

Effects of Z_b states in $\Upsilon(3S, 4S)$ dipion transitions

Wednesday 27 September 2017 12:00 (20 minutes)

There has been a long-standing puzzle in understanding why the dipion invariant distribution for the $\Upsilon(3S) \rightarrow \Upsilon(1S)\pi\pi$ transition shows a double-bump structure while other analogous transitions have only one. By including the $\pi\pi$ final state interaction and effects from the Z_b states, we show that this phenomenon can be understood. However, this requires the partial widths of the Z_b states to be much larger than those naively calculated from the measured branching fractions. The analysis is further extended to the dipion transition from the $\Upsilon(4S)$ to the $\Upsilon(1S)$, and we predict a nontrivial structure at around 1 GeV in the dipion invariant spectrum for this process.

Author: GUO, Feng-Kun

Presenter: GUO, Feng-Kun

Session Classification: Exotic states and candidates

Track Classification: Exotic states and candidates