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Double phi production in $p\bar{p}$ reactions near threshold

We investigate the two-vector meson production near threshold via $\bar{p}p \rightarrow \phi\phi$ equation using an effective Lagrangian method. Our calculations suggest that the $N^{(*)}$ exchange in the t- and u-channel contributes to the total cross section of reactions near threshold. Contributions from f_0 and f_2 mesons in the s-channel lead to a peaking structure in the total cross section. We confirmed that the results satisfy (extended) Ward-Takahashi identity, when taking into account the hidden-local symmetry for the phi meson. $\bar{\Lambda}\Lambda$ threshold results generate a cusp structure in the total cross section near 2.23GeV. To lay the groundwork for polarization observables, we calculate the spin density matrix elements and spin correlations between to phi mesons.

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