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Search for a stable six-quark state in Υ decays at $BABAR$

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Recent investigations have suggested that the six-quark combination $uuddss$ could be a deeply bound state (S) that has eluded detection so far, and a potential dark matter candidate. We report the first search for a stable, doubly strange six-quark state in $\Upsilon \rightarrow S\bar{\Lambda}\bar{\Lambda}$ decays with the $BABAR$ experiment. No signal is observed, and limits on the combined $\Upsilon(2S, 3S) \rightarrow S\bar{\Lambda}\bar{\Lambda}$ branching fraction set stringent limits on the existence of such exotic particles.

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