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Study of $X(3872) \rightarrow J/\psi\pi\pi$ in $B \rightarrow X(3872)K^-$ and $B \rightarrow X(3872)K_S^0$
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— We search for a charged partner of the $X(3872)$ in the decay $B^- \rightarrow X^-K$,
 $X^- \rightarrow J/\psi\pi^-\pi^0$, using 234 million $B\bar{B}$ events collected at the $\Upsilon(4S)$ resonance
with the BaBar detector at the PEP-II e^+e^- asymmetric-energy storage ring. The
resulting product branching fraction upper limits are $BR(B^0 \rightarrow X^-K^+, X^- \rightarrow$
 $J/\psi\pi^-\pi^0) < 5.4 \times 10^{-6}$ and $BR(B^- \rightarrow X^-\bar{K}_0, X^- \rightarrow J/\psi\pi^-\pi^0) < 22 \times 10^{-6}$
at the 90% confidence level. In addition, we update the previous BaBar result on
 $B^- \rightarrow X(3872)K^-$, $X(3872) \rightarrow J\psi\pi^+\pi^-$ with increased statistics and extend the
search to include $B^0 \rightarrow X(3872)K_S^0$ as well as $X(3872) \rightarrow J\psi\pi^0\pi^0$.

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