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Simulation of a Resonance Scan of the $X(3872)$ for $\bar{\text{PANDA}}^*$

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The charmonium-like state $X(3872)$ was discovered by Belle (PRL 91(2003)262001) and has recently been discussed as a possible $D^0 \bar{D}^{*0}$ S-wave bound molecular state. As the $X(3872)$ has a tentative quantum number assignment of $J^P=1^+$, direct formation is not possible in $e^+ e^-$ collisions, but in $p \bar{p}$ collisions at $\bar{\text{PANDA}}$. The poster shows results of MC simulations using the `PandaRoot` framework for the investigation of $X(3872)$ decays via the channel $X(3872) \rightarrow J/\Psi \pi^+ \pi^-$. In the framework of the MC simulations a resonance scan using the cooled \bar{p} -beam with a momentum resolution $\Delta p/p = 4 \cdot 10^{-5}$ was performed. Background was simulated using the dual parton model. The effect of final state radiation was considered. Results using `GEANT3` and `GEANT4` for particle transport are compared.

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