

# Study of the influence of the lowest tensor and scalar resonances on the $\tau \rightarrow \pi\pi\pi\nu_\tau$ width

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## Collaboration

## Abstract content

In this talk we present a new parametrization of the hadronic current for the decay  $\tau \rightarrow \pi\pi\pi\nu_\tau$  derived from the chiral lagrangian with explicit inclusion of resonances. We have included both scalar, vector and axial-vector resonances as well, for the first time, the lowest tensor resonance ( $f_2(1270)$ ). Both single and double-resonance contributions to the hadronic form factors are taken into account. To satisfy the correct high energy behaviour of the hadronic form factors, constraints on numerical values of the vertex constants have been obtained. Also it has been demonstrated that the hadronic current reproduces its chiral limit. To get the model parameters we have fitted the one-dimensional pion invariant mass distributions to the preliminary BaBar data. Results of the fit are presented.

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