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## Intermediate dynamics of the four pions production in $e^+e^-$ annihilation and tau decay processes

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The contribution is dedicated to an amplitude analysis of the  $e^+e^- \rightarrow 4\pi$  and  $\tau \rightarrow 4\pi\nu$  processes. The amplitude analysis is performed using experimental data from the CMD-3 detector at the VEPP-2000 collider in the energy range 0.9–2.007 GeV. In the study the dominance of the  $e^+e^- \rightarrow \omega\pi^0 \rightarrow 4\pi$  and  $e^+e^- \rightarrow a_1\pi \rightarrow 4\pi$  amplitudes is proved, as well as sizable contributions of the  $\rho^+\rho^-$ ,  $\rho f_0$ ,  $\rho\sigma$  and etc. states are observed. The obtained amplitude is used for the test of the isospin relations and hypothesis of conserved vector current (CVC) in the comparison of spectra and probabilities of  $e^+e^- \rightarrow 4\pi$  and  $\tau \rightarrow 4\pi\nu$  reactions. Also a precise measurement of the cross section of  $e^+e^- \rightarrow 4\pi$  is performed and will be shown in the relationship to g-2 puzzle.

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