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Determination of the magnetic dipole moment of the rho meson

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We determine the magnetic dipole moment of the rho meson using preliminary data from the BaBar Collaboration for the $e^+e^- \to \pi^+\pi^-2\pi^0$ process, in the center of mass energy range from 0.9 to 2.2 GeV. We describe the $\gamma^* \to 4\pi$ vertex using a vector meson dominance model, including all intermediate resonance contributions. We find that $\mu_\rho = 2.1 \pm 0.5\ [e/2m_\rho]$. In addition, we obtain the branching ratio $BR(\rho^0 \to \pi^+\pi^-2\pi^0) = 1.7 \pm 0.6 \times 10^{-5}$.

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