Weak radiative hyperon decays and vector meson dominance

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Abstract

We study the question whether the phenomenologically successful pole–model VMD approach to weak radiative hyperon decays can be made consistent with Hara's theorem and still yield the pattern of asymmetries exhibited by experimental data. It appears that an essential ingredient which governs the pattern of asymmetries is the off–shell behaviour of the input electromagnetic $1/2^-$ - $1/2^+$ - γ couplings, which was not discussed in the literature so far. Although this behaviour can be chosen in such a way that the experimentally observed pattern is obtained and yet Hara's theorem satisfied, the approach yields then a definite prediction for the size of weak meson-nucleon coupling constants. Comparison with experiment reveals then another conflict.