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Strong form factor of delta(1232)-isobar

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We investigate strong decay of the Delta(1232)-isobar as three-quark system in the covariant quark model. We analytically, based on Fiertz transformation, prove that the three-quark current of baryon with quantum numbers J_P = 3/2^+
have the one possible form. The width of decay is calculated by fitting of the model's free parameter. Also we numerically computed strong form factor G_(Delta p pi) (Q2) of the Delta(1232)-isobar, which determined for the space-like transfer momenta.

Summary

We carried out a detailed construction of the three-quark current of the Delta(1232)-isobar, which done with Fiertz transformation. Determined matrix element and width of strong decay of Delta(1232)-isobar. Model's only free parameter were calculated by fitting of theoretical decay width to experimental. We obtain that strong coupling constant equal to 15.2 GeV.
The dependence of the squared transfer momenta of the pion in the Euclidean region is constructed. We compare our results with others theoreticals approaches and conclude that our results is in good agreement with that works.

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