

Model dependence in dynamic resonance generation.

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Predicting the spectrum of resonances with Baryon number $B = 0$ and $B = 1$ are a good test of our understanding of the effective QCD interaction at medium energies. Some of these states have a simple interpretation in term of the quark model while many others have large quark-anti-quark components and should rather be regarded as a molecular state resulting from the dynamics in a coupled channels scattering problem. It will be argued that for a more reliable calculation one should constrain the model for the scattering matrix to obey constraints such as causality, relating the real and imaginary parts through a causal dispersion relation, and unitarity. In addition low-energy theorems should be obeyed at threshold.

In this presentation the results of two such models will be explored, the N-over-D (N/D) and an algebraic approach. It is shown that the results of the two methods are similar for weak interactions but differ considerably for the strong coupling case.