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A prediction of D^*-multi-ρ states

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We present a study of the many-body interaction between a D^* and multi-ρ. We use an extrapolation to SU(4) of the hidden gauge formalism, which produced dynamically the resonances $f_2(1270)$ in the $\rho\rho$ interaction and $D_2^*(2460)$ in the ρD^* interaction. Then let a third particle, ρ, D^*, or a resonance collide with them, evaluating the scattering amplitudes in terms of the Fixed Center Approximation of the Faddeev equations. We find several clear resonant structures above 2800 MeV in the multibody scattering amplitudes. They would correspond to new charmed resonances, D_3^*, D_4^*, D_5^* and D_6^*, which are not yet listed in the PDG, which would be analogous to the $\rho_3(1690)$, $f_4(2050)$, $\rho_5(2350)$, $f_6(2510)$ and $K_3^*(1780)$, $K_4^*(2045)$, $K_5^*(2380)$ described before as multi-ρ and K^*-multi-ρ states respectively.

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