Understanding the positive-parity charm mesons

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Since the discovery of the $D_{s0}^\wedge(2317)$ *and the* $D_{s1}(2460)$ *in 2003, there have been 3 puzzles in the spectroscopy of positive-parity charm mesons: (1) why are the* $D_{s0}^\wedge$(2317) and D_{s1}(2460) masses much lower than the quark model predictions for the lowest positive parity charm mesons? (2) why is the mass difference between the $D_{s0}^\wedge(2317)$ *and the* $D_{s1}(2460)$ *is equal to that between the D and the* $D^\wedge$ within 2 MeV? (3) why do the nonstrange partners of these two charm-strange mesons have masses larger than or similar to them? In this walk, I will show that all these puzzles find a natural resolution in the picture that these lowest positive-parity charm mesons are dynamically generated from the interaction between the light pseudoscalar mesons and ground-state charm mesons.

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