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The New Exotic Heavy Mesons¹

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Several new hadrons whose constituents include a charm quark and antiquark have recently been discovered, beginning with the X(3872) in 2003. Some of them do not fit naturally into the charmonium spectrum and they are therefore candidates for exotic mesons. The exotic possibilities include hybrid mesons, tetraquark mesons, and mesonic molecules. The large mass of the charm quark provides a handle that can help discriminate between charmonium states and exotic mesons. The remarkable proximity of the mass of the X(3872) to a charm meson threshold provides an additional handle that establishes this state definitively as a charm meson molecule. The interpretation of several of the other exotic candidates remains a mystery.

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