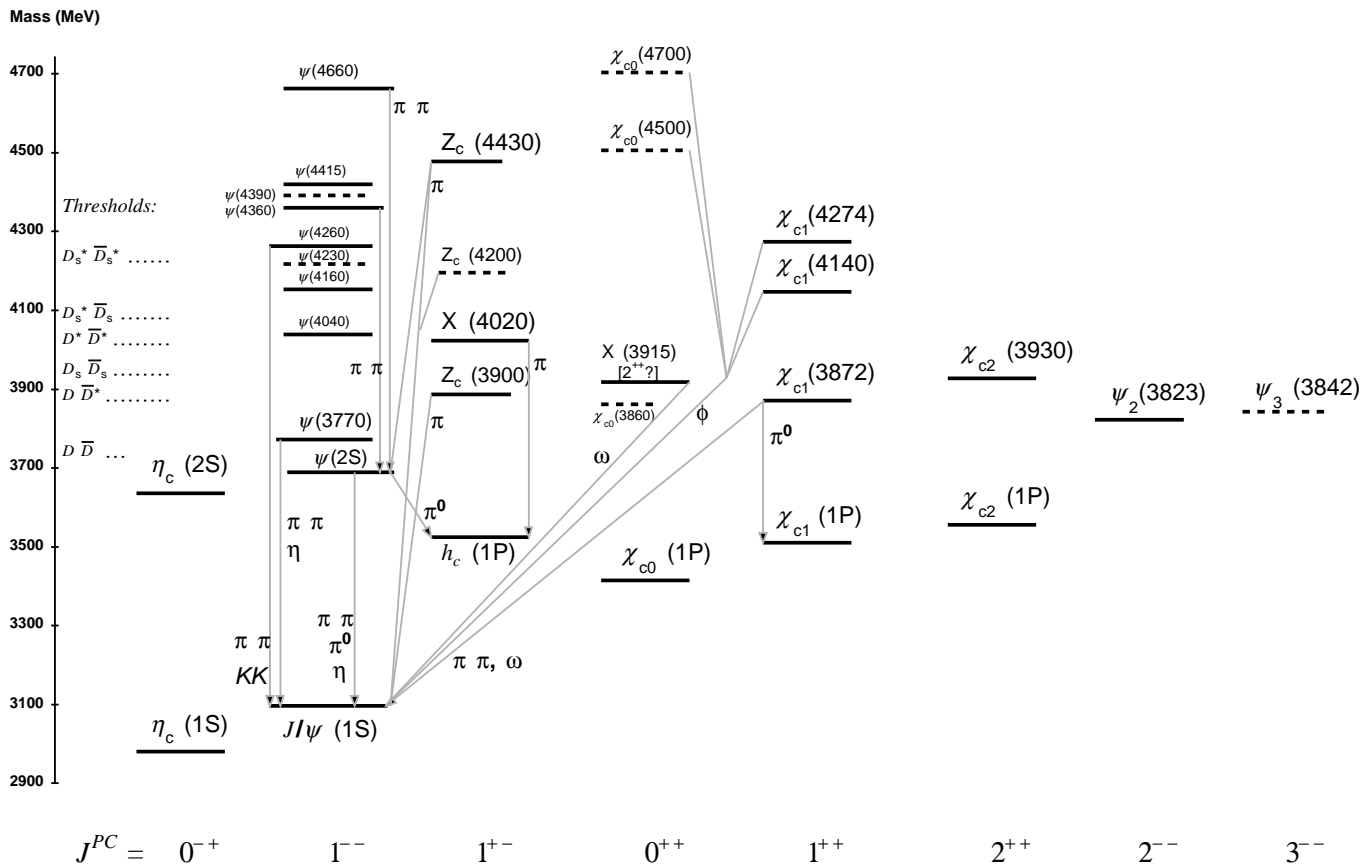


## Charmonium System

Updated August 2019.



The level scheme of meson states containing a minimal quark content of  $c\bar{c}$ . The name of a state is determined by its quantum numbers  $I^G J^{PC}$  (see the review “Naming Scheme for Hadrons”). States with unestablished quantum numbers are called  $X$  and are drawn according to our best estimate of their likely  $J^{PC}$ . States included in the Summary Tables are shown with solid lines; selected states not in the Summary Tables, but with assigned quantum numbers, are shown with dotted lines. The arrows indicate the most dominant hadronic transitions. Single photon transitions, including  $\psi(nS) \rightarrow \gamma\eta_c(mS)$ ,  $\psi(nS) \rightarrow \gamma\chi_{cJ}(1P)$ , and  $\chi_{cJ}(1P) \rightarrow \gamma J/\psi$ , are omitted for clarity. For orientation, the location of the thresholds related to a pair of ground state open charm mesons is indicated in the figure.