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Understanding the properties of Xi(1690) and Xi(2120)

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We have recently studied the interaction of meson-baryon systems with strangeness -2 and our results explain why some Xi-baryons are narrower than expected. For instance, the latest BABAR and BELLE data show that the width of Ξ(1690) is of the order of 10 MeV. With our coupled channel calculation of the pseudoscalar meson-baryon and vector meson-baryon systems with chiral and hidden local symmetry Lagrangians, we find properties of Xi(1690) which are in excellent agreement with recent data. We find that the known mass, width, spin-parity and branching ratios of Ξ(1690) can be naturally explained in terms of coupled channel meson-baryon dynamics. We find another narrow resonance which can be related to Ξ(2120). We also look for exotic states Xiˆ+ and Xiˆ{–} but find none. We also obtain the cross sections for the anti-kaon induced Xi production processes, with the motivation for obtaing information which can be useful for understanding the enhanced yield of Ξ in the heavy ion collisions.

Primary authors: Prof. KHEMCHANDANI, Kanchan (Unifesp); Prof. MARTINEZ TORRES, Alberto; Prof. HOSAKA, Atsushi; Prof. NAGAHIRO, Hideko; Prof. NAVARRA, Fernando; Prof. NIELSEN, Marina

Presenter: Prof. KHEMCHANDANI, Kanchan (Unifesp)

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