

Experimental searches for light exotica

Thursday, 28 September 2017 10:10 (35 minutes)

The search mesons composed of light quarks with combinations of angular momentum (J), parity (P), and charge conjugation (C) that cannot be formed by a quark-antiquark pair has been a topic of experimental interest for several decades. While QCD does not seem to forbid the formation of exotic mesons, the evidence supporting their existence in nature is sparse. If such mesons do exist in nature, they would shed light on the role of gluonic degrees of freedom in the construction of hadrons. In the last decade the experimental search for exotics has been further motivated by lattice QCD predictions of a spectrum of exotic and non-exotic hybrids. At the same time, several experiments have produced data sets of unprecedented statistical precision, which has both enabled and required a more thorough understanding the underlying reaction dynamics to extract robust signals for new resonances. And more data from complementary experiments are expected in the near future. In this talk I will try to capture the recent developments in what is a long history of experimental activities, discuss them in the broader context of hadron spectroscopy, and highlight future prospects for discovery and study of light quark exotica.

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Session Classification: Plenary

Track Classification: Plenary session