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Decays of an exotic 1^{-+} hybrid meson resonance from QCD

Friday 30 July 2021 07:30 (15 minutes)

An exotic hybrid meson resonance appearing in $J^{PC} = 1^{-+}$ is determined for the first time from lattice QCD. Many finite volume energy levels are computed and used with the coupled-channel extension of the Lüscher formalism to determine the scattering amplitudes in the limit where SU(3) flavour symmetry is exact. The scattering amplitude contains a pole that has a large coupling to an axial-vector-pseudoscalar channel, suggestive of a broad π_1 resonance with a dominant $b_1\pi$ decay mode.

Based on A. J. Woss et al (for the Hadron Spectrum Collaboration),
PRD 103 (2021) 5, 054502, arXiv: 2009.10034.

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