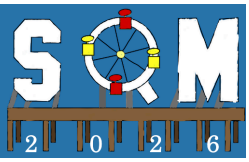
The 22nd International Conference on
Strangeness in Quark Matter
22-27 March, 2026, Los Angeles, CA



Contribution ID: **77** Type: **Oral Presentation**

Search of exotic resonances in proton-proton and Λnn hypernuclei in Pb–Pb collisions with ALICE

Tuesday, 24 March 2026 09:25 (20 minutes)

Exotic particles are those whose internal structure is not well understood and cannot be accurately described by state-of-the-art theoretical models or predictions. Current hypotheses regarding the nature of these exotic particles range from conventional mesons and baryons to multiquark configurations (such as tetraquarks), glueballs composed of valence gluons, and molecularly bound states formed between hadrons. The internal structure of some of these molecular states remains uncertain as well, with interpretations varying from traditional hadronic bound states to more complex three-body resonance configurations. Understanding the underlying structure and dynamics of these states can provide valuable constraints to hadronization mechanisms and improve our comprehension of non-perturbative effects in the strong interaction.

This contribution will present a broad array of different measurements from ALICE measured during both LHC Run 2 and Run 3. We present the first measurement of the transverse momentum spectra of the lightest resonance scalar glueball candidate in the $K^0_s K^0_s$ decay channel in pp collisions at 13.6 TeV. This is followed by a measurement of the upper limit on the production of bound Λnn hypernuclei in Pb–Pb collisions at 5.36 TeV, which is compared to predictions from the statistical hadronization model. Lastly, the production of $f_0(980)$ and $f_1(1285)$ measured from pp collisions at both 13 and 13.6 TeV are presented, accompanied by comparisons to conventional resonances with well-known quark structures.

Authors: ALICE COLLABORATION; SAWAN, Sawan (NISER, India)

Presenter: SAWAN, Sawan (NISER, India)

Session Classification: Parallel III: Resonances