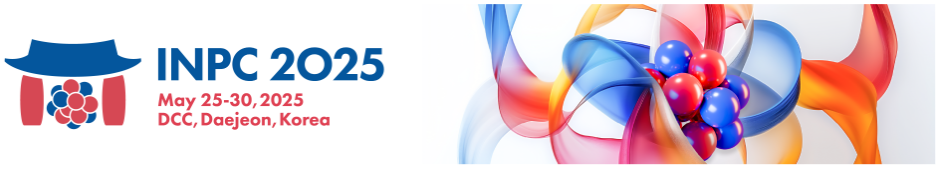

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Accessing the internal structure of exotic resonances

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Exotic resonances were first observed in scattering experiments in 1970s, but the nature of these short-lived resonances still remains debatable. The understanding of such exotic hadrons can provide better insight into the non-perturbative regime of Quantum Chromodynamics (QCD). Resonances such as $f_0(980)$ and $f_1(1285)$ challenge the conventional quark model, with their nature remaining uncertain—potentially being tetraquark states or meson-meson molecular states. Similarly, measurements of $f_2(1270)$, $f_2(1525)$ and $f_0(1710)$ productions are sensitive probes to explore gluonic bound states.

Leveraging the advanced particle identification capabilities of the ALICE detector, detailed studies have been conducted on the production of these exotic resonances in proton–proton and proton–nucleus collisions at LHC energies. This contribution will present new measurements of the differential spectra and integrated yields of $f_0(980)$ and $f_1(1285)$, along with comparisons to model calculations to verify their internal structure. In addition, this presentation will cover the production of other exotic resonances, such as $f_2(1270)$, $f_2(1525)$, and $f_0(1710)$, which may provide further insights into the nature of Glueballs.

Primary author: KIM, Junlee (CERN)

Presenter: KIM, Junlee (CERN)

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