The unprecedented luminosities available at LHC in Run 3 and Run 4 (2021-2029) will offer a unique physics potential for the study of the formation of complex hadronic structures. In central ultrarelativistic heavy-ion collisions the light (hyper)nuclei formation is described by a thermal-statistical model which foresees that hadron abundances are produced when inelastic collisions stop, the chemical freeze-out, that occurs at the temperature $T_{\text{chem}} = 156$ MeV [1]. Below that temperature also elastic collisions cease, the kinetic freeze-out occurs, and the formation of (hyper-)nuclei and QCD exotic states can be modeled with an initial production of their constituents in a chemically equilibrated medium followed by the coalescence of such constituents into more complex systems [2][3].

The expected yield of (anti)(hyper)nuclei in 2 GeV/c $< p_T < 10$ GeV/c in most central Pb–Pb collisions will allow:

- the measurement of the elliptic flow ($v_2$) of nuclei heavier than deuteron with a statistical precision better than 5%.
- the first precise measurement of the mass of nuclei with $A = 3$ allowing to test Charge Symmetry Breaking (CSB) in the (anti)nuclei sector.
- the discovery of the $^3\text{H}$ and $^3\text{He}$
- to disentangle the role of the thermal-statistical model from the coalescence model in nuclei production. The coalescence parameter of the $^3\text{H}$ formation, in fact, differ by up to three orders of magnitude in the two cases [5], making the hypetriton very sensitive to the production process.

The predictions of thermal and coalescence models for exotic hadrons in central Pb–Pb collisions in the new luminosity regime [3] will allow for precise measurements of the $f_0(980)$ and $N(1875)$ with estimated yields larger than $10^7$ detected particles and a significance larger then 100. Their study will provide new insights into their nature (multiquark states or hadron molecules). Also dibaryon states such as $N\Xi$, $N\Sigma$, and $N\Lambda_s$ should these exist, will be abundantly produced ($>10^8$) thus improving the understanding of the baryon-baryon potential as well as the nuclei bound state formation after the chemical freeze-out.