Extending the limit of A for (anti)hypernuclei analyses from 3 to 4 at the LHC

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This poster will present the first-ever observations of $A = 4$ (anti)hypernuclei at the LHC. In particular, (anti)$^4_\Lambda$H and (anti)$^4_\Lambda$He have been examined in Pb–Pb collisions at 5.02 TeV, collected during the data taking period of the LHC Run 2. Together with their mass and antiparticle-to-particle ratio, the production yield has been measured and compared to state-of-the-art theoretical models. Additionally, the first evidence of $^4_\Lambda\overline{\mathrm{He}}$ has been achieved within this analysis. These measurements pave the way for detailled investigations of the large Charge-Symmetry-Breaking implied by the Λ binding-energy difference in these hypernuclei. Moreover, differential measurements of their productions yields will contribute to a better understanding of their production models. The ongoing Run 3 at the LHC already delivered a large amount of Pb–Pb collisions, that will allow for those detailled studies. We will show first results on (anti)hypernuclei, using the collected high-precision Pb–Pb data of the ALICE apparatus in Run 3.