Contribution ID: **27** Type: **Oral presentation**

Light-by-light scattering cross-section measurements at LHC

Thursday, 7 April 2022 15:00 (20 minutes)

We present the first combination of light-by-light scattering ($\gamma\gamma \to \gamma\gamma$) cross-section measurements at LHC, using lead-lead data recorded by the ATLAS and CMS Collaborations at 5.02 TeV and corresponding to integrated luminosities of 2.2 and $0.39\,\mathrm{nb}^{-1}$, respectively. The combined cross-section is 115 ± 19 nb, with the two measurements contributing with factors of 0.8 and 0.2, accordingly. The combined result improves upon the best individual determination of $\gamma\gamma \to \gamma\gamma$ by approximately 10%, and it is consistent with the standard model prediction within two standard deviations. For the first time, we calculate the potential contribution of the $\eta_b(1S)$ meson production to the $\gamma\gamma \to \gamma\gamma$ invariant mass distributions, by calculating its inclusive photoproduction cross-section.

Primary authors: GRABOWSKA-BOLD, Iwona (AGH University of Science and Technology (PL)); CHAPON, Émilien (Université Paris-Saclay (FR)); CHUDASAMA, Ruchi (Tata Inst. of Fundamental Research (IN)); GRANIER DE CASSAGNAC, Raphael (Centre National de la Recherche Scientifique (FR)); Dr KRINTIRAS, Georgios (The University of Kansas (US)); KLUSEK-GAWENDA, Mariola (Institute of Nuclear Physics Polish Academy of Sciences); NGUYEN, Matthew (Centre National de la Recherche Scientifique (FR))

Presenter: Dr KRINTIRAS, Georgios (The University of Kansas (US))

Session Classification: Parallel Session T13: Electroweak probes

Track Classification: Electroweak probes