



Contribution ID: 65

Type: **Oral presentation**

## Measuring isolated prompt photon production in small and large collision systems with ALICE

*Wednesday 25 September 2024 09:00 (20 minutes)*

This talk presents a comprehensive study of isolated prompt photon production in pp, p-Pb and Pb-Pb collisions by ALICE, including new analyses which elucidate the low- $x$  structure of matter and the impact of fragmentation photons on the prompt photon cross section. The first measurement of the prompt photon-nuclear modification factor  $R_{pA}$  in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV is presented. A measurement of  $R_{pA}$  at  $\sqrt{s_{NN}} = 8.16$  TeV is also presented, which probes cold nuclear matter effects down to  $x \approx 2.9 \cdot 10^{-3}$ . In addition, the first ALICE measurement of prompt photon production in centrality-selected Pb-Pb collisions is presented – extending the low- $x$  reach of previous measurements by about a factor two. This measurement is carried out for the first time with multiple isolation cone radii, which quantifies the contribution of fragmentation photons to the total physical cross section. These data provide new input for constraining nuclear PDFs, and for disentangling cold nuclear matter and hot QCD medium effects.

### Category

Experiment

### Collaboration

ALICE

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