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Opportunities with ultra-soft photons: Bremsstrahlung from stopping

Thursday 7 April 2022 16:00 (20 minutes)

We examine the spectrum of bremsstrahlung photons that results from the stopping of the initial net charge distributions in ultra-relativistic nucleus-nucleus collisions at the LHC. This effect has escaped detection so far since it becomes sizeable only at very low transverse momentum and at sufficiently forward rapidity. We compute the spectra of photon yields from different models of initial charge-rapidity distributions and discuss the distinguishability of the different models. We argue that it may be within reach of the next-generation LHC heavy-ion detector ALICE-3 that is currently under study, and comment on the physics motivation for measuring it.

Based on: Sohyun Park, Urs Achim Wiedemann, Phys.Rev.C 104 (2021) 4, 044903 and additional model studies.

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