

XXV International Baldin Seminar on High Energy Physics Problems  
"Relativistic Nuclear Physics and Quantum Chromodynamics"



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## The matrix method for estimating the background induced by the misidentification of a jet as a photon in pp collider experiment

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Data-driven techniques are frequently used in high energy physics to get reliable estimate of backgrounds from object misidentification. Here, an approach to the estimation of the background induced by the misidentification of a jet as a photon, in short jet  $\rightarrow \gamma$ , is presented. It is based on real and fake efficiencies of real/fake photons to pass the tight identification criteria. Selected events are categorized based on the photon isolation. The final number of jet  $\rightarrow \gamma$  background events in the signal region can be estimated using the control region. The proposed method does not impose any requirements for its application, which is an advantage over other commonly used methods.

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