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Usage of machine learning for the separation of electroweak and strong $Z\gamma$ production

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Separation of electroweak from strong $Z\gamma$ production is a very challenging task due to identical final states of such processes. The only difference is the origin of two leading jets. Rectangular cuts on jet kinematical variables from ATLAS Run1 $Z\gamma$ analysis were improved using machine learning techniques. New selection variables were also tested. The reached expected significance of separation for ATLAS Run2 conditions and 36 fb^{-1} amount of data is 6σ.

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