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## Amelioration of noise burst mitigation measures in the ATLAS Liquid Argon calorimeter

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The ATLAS detector is one of the four main experiments near the Large Hadron Collider (LHC) at CERN. The Liquid Argon Calorimeter (LAR) is an essential part of ATLAS, its primary purpose being the measurement of electrons and photons, but also providing important input for the measurement of jets and transverse impulses. Since LHC Run 1, the LAR is affected by a coherent noise phenomenon so-called Noise Bursts (NB), which reduces its efficiency. This noise must therefore be identified and removed with minimal loss of physics data. The current method for identifying NB candidates relies on cells connected to the Front-End Board (FEB), which shapes the energy deposition signals. In this work, we explore an alternative identification method based on the coherent behavior of cells supplied by the same High Voltage Line (HV Line). This HV Line-based flag identifies events as NB only when the energy deposition is significant. Additionally, it identifies certain NB events that were not caught by the FEB-based flag despite considerable energy deposition. The HV Line-based flag more effectively identifies NB candidate events, thereby reducing possible losses of physics data. A detailed study of this HV Line-based flag is presented in this work, and a perspective on identifying the partition origin of noisy event is proposed.

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