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## **An FPGA-based clusterization algorithm for the CMS iRPC detector**

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New improved RPC detectors will be installed in CMS stations 3/1 and 4/1 to increase the redundancy of the muon system. Electronics with precise Time-to-Digital converters(TDC) read out signals at both ends of the strips has been developed. The time difference between both ends can be used to calculate the radial position. Clusterization algorithm implemented on Backend electronics is essential to cluster single hits, generate the iRPC trigger primitives and transmit them to EMTF. Distinguished from the formal RPC clusterization algorithm, the new clusterization algorithm takes both strip number and radial position into account when generating the Trigger Primitives - TPs, which is helpful to eliminate the ambiguity in high pile-up conditions. This talk will cover the idea and implementation of how to use position information to form clusters, and some test results will also be provided.

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**Session Classification:** Poster session