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## **Performance of a new generation RPCs for particle physics at colliders of the next generation.**

The upgrade of present and future experiments in particle physics at high luminosity colliders will require a level one trigger of high selectivity and robustness in order to cope with the very heavy background levels. This selectivity requires detectors with very good space and time resolution operating at high rate.

We present in this paper the latest developments of the RPC detectors concerning rate capability (up to 30kHz/cm<sup>2</sup>), space resolution (few hundred microns) and time resolution (few hundred picoseconds). We also show that this improvement required the development of a fast, low noise and large dynamics front end electronics and a better understanding of the detector physics.

### **quote your primary experiment**

ATLAS

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**Track Classification:** Gaseous Detectors