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RD51 Collaboration - Micro Pattern Gas Detector Technologies and Applications

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Driven by the availability of modern photolithographic techniques, the RD51 collaboration is developing a variety of new Micro Pattern Gas Detectors (MPGD). Developments cover Gas Electron Multipliers (GEM) and Micromegas, thick-GEM, resistive GEM (RETGEM) and novel micro-pattern devices like GridPix. The aims of the collaboration are to facilitate the development of these advanced gas-avalanche detector technologies and associated electronic-readout systems, for applications in basic and applied research. Areas of activity include MPGD technology and new structures, device characterization, software and simulations, electronics, MPGD production, common test facilities, and applications of MPGD. By this coverage of all aspects of MPGD, RD51 aims to bring together leading experts in the field for the development of new technology and colleagues using this technology for a wide array of applications. This paper will illustrate the activities of the RD51 Collaboration, give information on regular workshops, and show examples of MPGD applications across a broad spectrum from particle and nuclear physics, astro-particle physics, medical imaging, and homeland security. Special emphasis will be given to the possible MPGD technologies applications in the LHC experiments upgrades.

for the collaboration

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Primary author: ROPELEWSKI, Leszek (CERN)

Presenter: ROPELEWSKI, Leszek (CERN)

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