



Contribution ID: 29

Type: **oral presentation**

A multigap RPC based detector for gamma rays

Tuesday, 7 February 2012 17:50 (20 minutes)

Transforming the resistive plate chambers from charged-particle into gamma-quanta detectors opens the way towards their application as a basic element of a hybrid imaging system, which combines positron emission tomography (PET) with magnetic resonance imaging (MRI) in a single device. We present the first results towards the development of a hybrid imaging system based on multigap glass resistive plate chambers. A GEANT4 based simulations of the efficiency of the RPC photon detectors with different converter materials and geometry were performed, leading to an optimization of the detector design. The output from these simulations together with the prototypes test results will be presented and analyzed.

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Session Classification: Simulations and modeling

Track Classification: Simulations and modeling