

Department of Physics

Particle Physics

The Denys Wilkinson Building, Keble Road, Oxford OX1 3RH



Experimental Particle Physics Seminar

at 2.15 pm

Dennis Sciama Lecture Theatre

Tuesday 19th November 2019

Dr Eraldo Oliveri

CERN

Gas Electron Multiplier (GEM) and Micro-Pattern Gaseous Detectors

Abstract

Introduced in 1997 by Fabio Sauli, Gas Electrons Multipliers (GEM) are today recognized as a successful technology in the context of gaseous detectors and in particular of Micro Pattern Gaseous Detector (MPGD). Initially used as a pre-amplification stage for multiwire or microstrip chambers, GEM foils showed immediately the potential to be a standalone detector. Since their invention, a large variety of detection systems based on GEM has been realized and several are planned for the future.

The seminar will treat in a non-exhaustive and speaker-biased way historical introduction, basic principle of operation of GEM and GEM based detectors, manufacturing techniques, applications and ongoing developments. In parallel with GEM developments, other technologies that belongs to the Micro Pattern Gaseous Detectors family will be highlighted.

Eraldo Oliveri is part of the CERN Gas Detector Development (GDD) team where he is doing generic and project oriented R&D on gaseous detectors. He is directly involved in the future CERN EP R&D program on gaseous detector technologies for future experiments. He is active member of the international RD51 collaboration for the Development of Micro-Pattern Gaseous Detectors Technologies. His experience with Micro Pattern Gaseous Detector and specifically GEM started in 2006 with the triple GEM based inelastic telescope T2 for the TOTEM experiment at the LHC.