



Contribution ID: 49

Type: **Poster presentation**

## GEM based alternatives for ion backflow suppression

*Tuesday, 23 May 2017 15:44 (4 minutes)*

Gas Electron Multipliers have undergone a very consistent development since their invention in 1997. Their production procedures have been tuned in such a way that nowadays it is possible to produce foils with areas of the order of the square meter that can operate at a reasonable gain with a very good stability. For the 3rd run of LHC, they will be included in the CMS and ALICE experiments after two significant upgrades of the detectors, confirming that these structures are suitable for very large experiments. In the special case of Time Projection Chambers, (in the ALICE TPC the multiwire proportional chambers will be replaced by quadruple GEM stacks) the ion backflow and the energy resolution are sensitive issues that must be addressed and the GEM has shown very good capabilities on dealing with both of them.

In this work, two different triple GEM stacks have been studied, one of them using three different hole pitch and the second one with a stainless steel mesh between the first and the second foils, with two different hole pitch. Both approaches will be discussed and compared, based on lab and simulation results, presenting two promising alternatives for ion backflow suppression in TPCs using GEMs.

**Primary authors:** NATAL DA LUZ, Hugo (Institute of Physics, University of São Paulo); BATTACHARYA, Purba (The Weizmann Institute of Science); GAMEIRO MUNHOZ, Marcelo (Institute of Physics, University of São Paulo); DE ARRUDA SERRA FILHO, Lucas (Institute of Physics, University of São Paulo); FRANÇA, Luís Eduardo Funo de Moura (Institute of Physics, University of São Paulo)

**Presenters:** BATTACHARYA, Purba (The Weizmann Institute of Science); GAMEIRO MUNHOZ, Marcelo (Institute of Physics, University of São Paulo)

**Session Classification:** Coffee Break and Poster Session - 1