

AIDA-2020 WP 13.4.1

**Preparation for large series production:
large-detector size preserving mechanical precision**

Hubert Kroha

Max-Planck-Institut für Physik, Munich

WP 13.4.1 Project Goals

Preparation for large series production: large-detector size preserving mechanical precision

- Development of integrated mechanical support and Faraday cage for large-area thin RPC chambers for future collider detectors (HL-LHC, FCC-hh etc.)
- Development of mechanical assembly procedures and tools for large-scale production.

In collaboration with

- CEA Saclay: Mechanical structures for Micromega detectors
- WP 13.2.3: High rate and fine space resolution RPCs operated with eco-gases (coord.: INFN-Rome II)
- WP 13.4.6: Preparation for large series production: production protocols of optimised RPC components for easy technology dissemination (coord.: INFN-Bari)

MPI Munich:

Development of large-area RPC mechanical structure, supports and Faraday cage, design of construction procedures and tools

CEA Saclay:

Development of mechanical structures for large-area precision gas detectors

INFN Rome II:

Development of thin-gap RPC gas volumes and precision readout panels

WP 13.4.1 Work Plan

Task	2015	2016	2017	2018
1 Design				
2 Mechanical prototype & test				
3 Electrical prototype 1 & test				
4 Design optimisation				
5 Electrical prototype 2 & test				
6 Testbeam				
7 Design optimisation				

Task 1 (2015):

- Mechanical Design work has started at MPI Munich,
- Principles fixed in discussion with partner institutions,
- Selection of stiffening material ongoing
- FEM calculations under preparation

Work is also performed in the context of an approved ATLAS Phase I upgrade project and in an R&D project for ATLAS Phase II upgrade funded by MPI.