

μ Rtube

a new geometry concept for MPGD detectors

Riccardo Farinelli

on behalf of Ferrara, Turin and LNF INFN sections

μ Rtubes in a nutshell

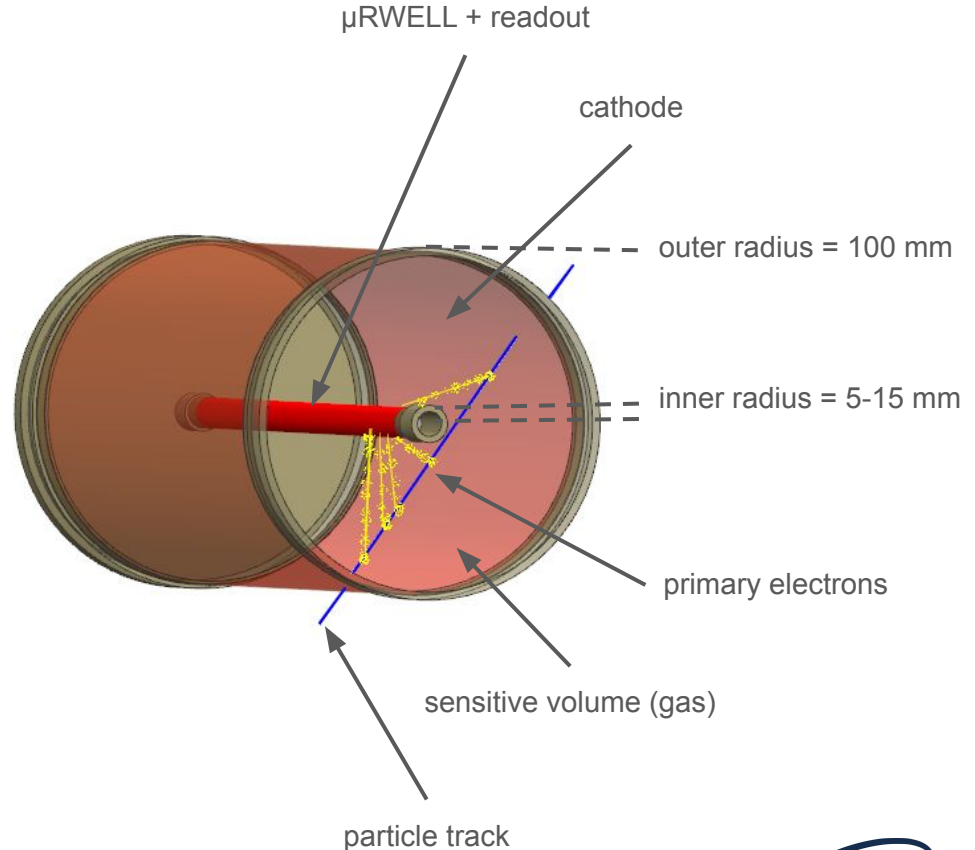
The basic idea is to develop a **tubular MPGD** working as a radial TPC.

The signal is **amplified** by a μ RWELL as a single stage amplification: its shaping to small radius is the **technological challenge**.

The main concept of the project is based on the convergent electrical field lines which introduce two important points:

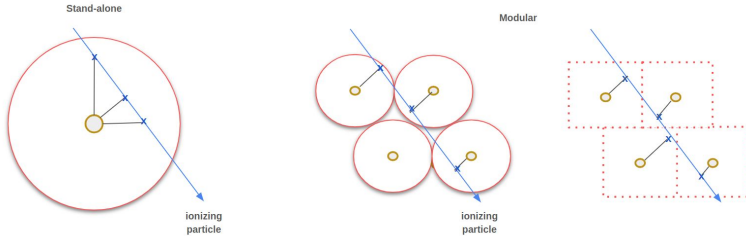
1. it reduces the transverse diffusion of the electrons
2. it **minimizes the number of channels** with respect to the sensitive volume

Application will be investigated both in HEP and non-HEP fields.



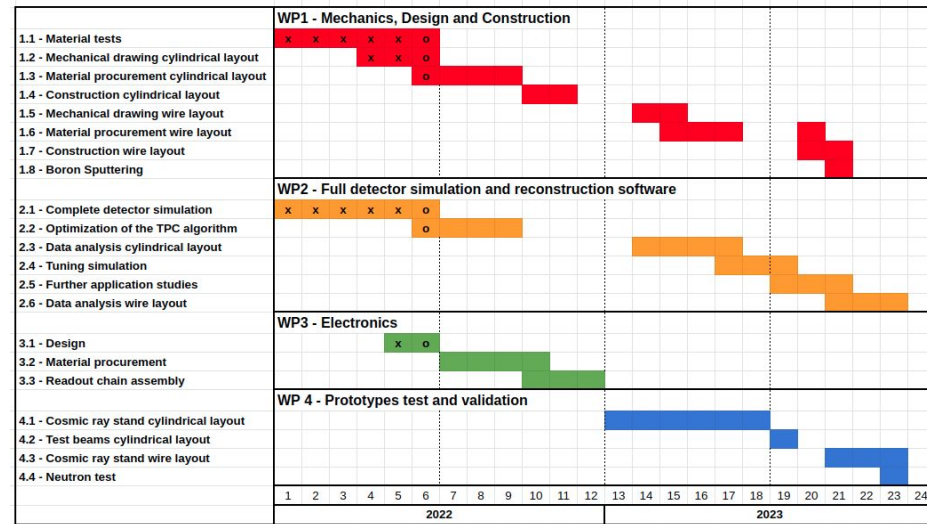
Next year

- Activities:
1. development of the wire layout
 2. test and validation of the prototypes
 3. data analysis, tuning of the simulation and studies for further application
 4. TestBeam @ CERN and NeutronTest @ENEA



Budget: **60k€**
 12k€ -> new μ RWELL circuits
 38k€ -> mechanics and consumable
 10k€ -> missions for validation and application

Support: ~1 mp -> mecha design
 ~1 mp -> mecha production and assembly
 ~1 mp -> electronics design and assembly



FTE:

- I. Balossino
- C. Cibinetto -> 0.2 FTE
- R. Farinelli -> 0.7 FTE
- I. Garzia
- S. Gramigna -> 0.1 FTE
- G. Mezzadri
- M. Scodreggio