**uRANIA: a micro-Resistive WELL for neutron detection**

Matteo Giovannetti – LNF-INFN on behalf of the uRANIA-V project

**Summary and results**

- For the planar cathode a scan for different $^{10}$B thickness has been performed in current mode, measuring an efficiency $\approx 1.5 \div 2.0\%$
- The planar $^{10}$B-coated cathode + $^{10}$B-coated mesh configuration characterized in current mode exhibits an efficiency of $4.6 \pm 1.0\%$
- The counting mode measurements, performed for the $^{10}$B-coated planar and grooved cathode layouts show the following results:
  - Planar $\rightarrow 2.19 \pm 0.05\%$
  - Grooved $\rightarrow 2.61 \pm 0.06\%$

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10B neutron converter

Due to the $^3$He shortage a call for alternative solutions for thermal neutron detection arise. A $^{10}$B conversion stage facing the gas gap, through nuclear capture, transforms a standard μ-RWELL in a thermal neutron detector, reaching efficiency up to 10% for single detector plane.

Different converter geometries are accessible:

- **Planar cathodes**
- **Grooved cathodes**
- **Metallic meshes**

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HOTNES ENEA test facility

Results for HOTNES spectrum (100meV):
Detection efficiency for thermal neutron (25meV) increases by a factor of two

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From simulations, to results!