

Future Emerging Technologies in H2020: MPGD for « outside » applications

Sébastien Procureur & Damien Neyret

FET

•Future and Emerging Technologies (FET) aims at radically new technologies by exploring novel and high-risk research directions emerging from science and cutting-edge engineering. It promotes research beyond what is known, accepted or widely adopted and fosters novel and visionary thinking to open promising paths towards powerful new technologies. The supported research will be interdisciplinary and positioned between research driven by science and research driven by societal challenges or by industrial competitiveness bringing closer science and engineering. It will contribute to accelerating the transition from upstream research to research carried out in Societal Challenges and LEIT.

Call FET-Open - fostering novel ideas

Supporting a large set of early stage, high risk visionary science and technology collaborative research projects is necessary for the successful exploration of new foundations for radically new future technologies. Nurturing fragile ideas requires an agile, risk-friendly and highly interdisciplinary research approach. Attracting and stimulating the driving role of new high-potential actors in research and innovation, such as young researchers and high-tech SMEs, is also important for nurturing the scientific and industrial leaders of the future.

→ 2 calls in 2014 (~80M€), at least 1 in 2015

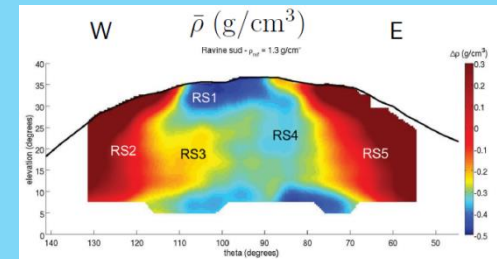
Micromegas outside labs

Bunch of new applications thanks to recent (and on-going) developments

- Industrialization process (e.g. ELVIA) → *large production capabilities*
- Detectors improvements (e.g. resistive MM) → *more stable & robust*
- Electronics reduction (e.g. multiplexing) → *can achieve ~200 channels/m²*

Already several contacts at Saclay outside (High Energy) Physics:

- Portable dosimetry (Landauer)
- Geosciences: volcanology (Institut de Physique du Globe)
- Mining exploration in boreholes (AREVA)
- Soil exploration/hydrology (Université de Rennes)
- Archeology (Laboratoire de Recherche sur les Monuments Historiques)
- Homeland security (NRBC-E grant for 2014)



(some) challenging aspects

Goal of the proposition: applications outside labs

- **Autonomisation/reduction of components**
 - HV modules
 - gas: low outgasing, recycling
 - overall power consumption
- **Long, remote experiments (up to several months)**
 - robustness of detectors
- **Hostile environment**
 - humidity, corrosive atmosphere (volcanology)
 - tight integration (boreholes)

Next steps

→ converge on a list (not a catalogue...) of targeted applications

→ identify institutes and industrials willing to join

- **1st call in December 2013**

- **Deadline for proposal submissions ~ March 2014**

Suggestions & comments welcome