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MAPSSIC: a novel CMOS intra-cerebral beta+ probe for deep brain imaging in awake and freely moving rat

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Preclinical behavior neuroimaging gathers simultaneous assessment of behavior and functional brain imaging. This complementarity is seen as a critical step for comparing animal to human behavior and consequently assess the validity of preclinical studies in drug development.
Achieving such a combination is difficult, anaesthesia or restraints inherent to micro-PET imaging precludes its use for behavior studies.

In that context, we have presented an original strategy using submillimetric pixelated probes to directly measures positrons inside the rat brain.
The small positrons detection volume around the sensor is comparable with rat brain loci sizes ; integrated electronics and wireless communication system allows fully freely-moving rats experiments.
Former intracerebral probes have shown promising results but have suffered from various detection limitations.
This talk will present MAPSSIC, a novel β^+ probe benefiting from innovative CMOS MAPS sensors to overcome these limitations.

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