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First Results from the 4D-PET Scanner for the Brain Examination

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We present the first experimental results of the 4D-PET scanner, a novel system for neurological studies. The 4D-PET detector geometry consists of a cylinder with 20 super-modules.

The attached abstract summarizes the results obtained both at super-module level (experimental validation) and system level (simulated data using the measured performance to model its response).

These results demonstrate that the new 4D-PET brain scanner configuration allows for simultaneous determination of the 3D-impact position of the gamma-ray and also of its arrival time. The improvement in the specification that this new design offers should make possible to visualize small critical structures of the brain (substantia nigra, Raphe nuclei, ...), opening unprecedented opportunities for clinically relevant discoveries in neurophysiology and neuropsychiatry. We are currently working on the assembly of the full scanner, results will be available at the conference time.

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