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P1.77: First simulations of Open-IMAGING PET

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This work presents the first simulations performed in the context of Open-IMAGING project (ERC-2022-POC1 Grant agreement ID: 101069298) which consists in the development of two PET detector paddle modules. In this project, one detector module will be composed by a 4x4 array of Broadcom SiPM 4x4mm² each, coupled to an 8x8 scintillator array of 2x2x12mm³ LYSO crystals, separated with ESR and having the top and bottom surfaces polished to increase the light collection. Four of these modules will conform a so-called supermodule. The final paddle will be formed by 4x4 supermodules with a total detector area of 256x256mm². The results of the simulations show that at 300 mm distance between paddles, 180ps TOF resolution is suitable for organ exploration as brain or cardiac applications.

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