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Towards modular total-body PET from plastic scintillators

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All currently used PET scanners are based on crystal scintillators readout, where detectors are placed radially in rings surrounding a patient's body. J-PET group is working on scanner utilizing plastic scintillators to detect gamma quanta. Since light attenuation of plastics is much lower than the one of crystals, modules with plastic scintillators can be orientated along patients body. First full scale prototype of J-PET scanner was already assembled and is providing data for both medical and fundamental physics studies. The next modular prototype is commissioned now. Modularity will make the change of chamber geometry and portability of whole system possible. In this contribution a general design and current status of the assembly of the modular J-PET will be presented as well as expected performance of total-body PET scanner based on simulations.

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