

Redesign of TGeo for concurrent particle transport

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Concurrency became lately a valuing goal for HEP software for performing better on modern computer architectures. Speeding up the simulation of particle transport is a major R&D objective to cope with the foreseen increase in luminosity for the LHC by 2018. Features like track-level parallelism and vectorization are important levers to move towards high-performance particle transport. The geometry navigation engine behind has to follow in all aspects the upgrades of the transport package in terms of: concurrency, vectorisation and fine grain work provisions to be dispatched to co-processors like GPGPU or MIC.

The talk will cover the changes already available in TGeo to deal with concurrency, as well as the development plans along this line.

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