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Support for SIMD Vectorization in ROOT

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The next big upgrade of the LHC will increase data volume by an order of magnitude. This is a significant challenge that will require most HEP software to adapt to be able to exploit all forms of parallelism. Portable and efficient SIMD vectorization has been a particularly difficult challenge due to incompatible programming APIs from different libraries, and rapid evolution of hardware. This presentation will discuss common vectorization techniques, VecCore, the library used by GeantV and ROOT for portable SIMD vectorization, and techniques for building software with support for multiple architectures.

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