

CAD support and new developments in DD4hep

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Consistent detector description is an integral part of all modern experiments and also the main motivation behind the creation of DD4hep, which tries to address detector description in a broad sense including: geometry and the materials used in the device, additional parameters describing e.g. the detection techniques, constants required for alignment and calibration, description of the readout structures and conditions data. A central component of DD4hep is DDG4 which is a mechanism that converts arbitrary DD4hep detector geometries to Geant4 and provides access to all Geant4 action stages. In addition to that DDG4 also offers a comprehensive plugins suite that includes handling of different IO formats, Monte Carlo truth linking and a large set of segmentation and sensitive detector classes, allowing the simulation of a wide variety of detector technologies. One of the last remaining open issues of detector description was support for drawings from civil engineers for passive detector components. In this proceedings we highlight recent developments in DD4hep/DDG4 that enable support for CAD drawings and generic tessellated shapes and through the help of the library `assimp` enable the import of a wide variety of CAD formats, thus eliminating the need for writing complex re-implementations of CAD drawings in source code. In addition, we present other developments such as support for a new output format called EDM4hep and developments for a more unified and easier handling of units.

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