

COCOA: General purpose software for simulation and reconstruction of optical alignment systems

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We describe a C++ software that is able to reconstruct the positions, angular orientations and internal optical parameters of any optical system described by a seamless combination of many different types of optical objects. The program also handles the propagation of uncertainties, what makes it very useful to simulate the system in the design phase. The software is currently in use by the four optical alignment systems of CMS and it is integrated in the CMS framework, so that it can read the geometry description from simple text files or the CMS XML format and the input and output data from text files or an Oracle database.

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