

Abstract: This master thesis describes development and analysis of simulation, reconstruction and alignment for tests of Belle II vertex detector sensors as well as alignment procedure for the vertex detector itself. The first goal is to develop and test software tools which would allow analysis of sensor tests within common Belle II software framework. The second goal is to prepare the alignment chain for the vertex detector, being essential component of the detector calibration. First part of the thesis describes the Belle II experiment and its vertex detector, as well as the experimental beam test of the sensors and the common software framework. The theory behind the used alignment procedure utilizing Millepede II for alignment and General Broken Lines for track fitting is explained. Second part of the thesis then summarizes software tools developed or used and the results reached with these tools with emphasis on the alignment.