Design of a drift chamber for an experiment at FCC-ee for IEEE Conferences

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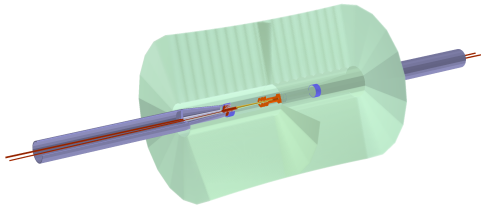

Fig. 1. The detectors at the interaction region for the FCC-ee IDEA concept.

***Abstract*—The physics aims at the electron positron option for the Future Circular Collider (FCC-ee) impose high precision requirements on the vertex and tracking detectors. The detector has also to match the experimental conditions such as the collisions rate and the presence of beam-induced backgrounds. A light weight tracking detector is under investigation for the IDEA (International Detector for Electron-Positron Accelerator) detector concept and consists of a drift chamber. Simulation studies of the drift chamber using the FCCSW (FCC software) are presented. Full simulations are used to study the effect of beam-induced backgrounds on such detector.**

I. Introduction

FCC-ee, as a high-luminosity circular electron-positron collider, with center-of-mass energies from 91.2 GeV to 365 GeV.

II. Drift chamber

III. Simulation with the FCC Software

A. Geometry description with DD4hep

B. Segmentation

C. Geant4 simulation

D. Digitization

IV. Impact of beam-induced backgrounds

V. Conclusion

Acknowledgment

References

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.