University of Applied Sciences Aachen
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Faculty: Medical Engineering and Technomathematics
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# Autonomous Fault Detection Using Artificial Intelligence Applied to CLAS12 Drift Chamber Data

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## 2.1 Overview

The CLAS12 Drift Chamber (DC) is a subsystem of the CLAS12 particle detector, located inside one of the halls of the Thomas Jefferson National Facility, Newport News Virginia, U.S.A. The detector is used at the core of many experiments, designed to gather information on particle interactions, mostly originating from an electron beam hitting a target inside of its center.

After interacting with the target, the resulting particles pass through the drift chamber subsystem that is designed to measure their momentum, which is done to aquire further insights into the underlying physical processes. This core responsibility of the drift chamber to register the results of particle interaction is the reason, why it is deemed to be the most crucial subsystem of the CLAS12 particle detector.

## 2.2 Drift Chamber Layout

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