

12th Beam Telescopes and Test Beams Workshop



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Type: **Talk**

Team Wire Wizards - Wire chambers prototyping

Thursday, April 18, 2024 2:40 PM (20 minutes)

As part of the Beamline for Schools competition, we have created our own of wire chambers design and built five prototypes that we tested at the DESY-II testbeam facility. The chambers are designed such that they can be built with tools typically found in maker labs and use widely available materials.

Our detector consisted of two pairs of chambers with each plane in rotated by 90 degrees, thus providing two points in space and allowing for visualisation of particle tracks. We tested the chambers with various gases and high-voltage to characterise their operating point. The supporting team at DESY provided us with the data-acquisition system and helped us writing a data analysis in python. Our final goal is to publish the design in open-source, with a simplified data-acquisition system that can cope with lower rates (for example from cosmic).

In this talk, we will explain the design process of the chambers and show the results of their tests at the DESY-II testbeam.

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