

# Task & Data Analysis

**Name of Dataset:** TPC Data CERN

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**File:** TPC\_m\_data\_96.zip

**Format:** zip-Ordner including SC3-ZArchive Files

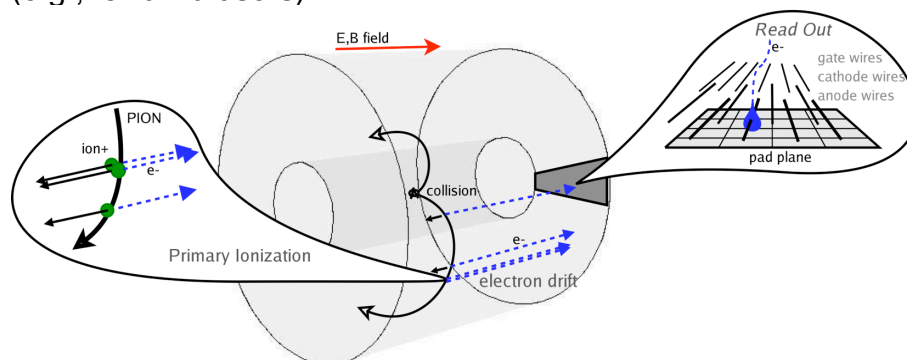
## Scenario

### The Story:

A time projection chamber (TPC) is a particle measurement device. One of the biggest TPCs has been mounted within the ALICE experiment at CERN, and was put into operation in November 2009 within the Large Hadron Collider Experiment.

We provide still simulated data of the measurement of proton-proton collisions. Other particles are produced in the collision, and leave tracks in the gaseous volume of the TPC. Along the track, the gas is ionized and emits electrons. These electrons are guided in an electrical field towards the left and right read-out chambers. There, they are measured as electron clusters at a certain location of the read-out chamber (radial distance from beam axis and angle  $\phi$ ) with a certain charge (number of electrons) and at a certain time - electrons that are freed close to the read-out chambers reach them first, while electrons close to the center arrive at the latest.

We ask for an intuitive auditory display of these tracks, that complements the visual display (in disambiguating the spatial directions) or can be used independently (e.g., for blind users).



## TaDa

### The Task:

Purpose: confirm, identify

Mode: interactive, focus, background

Type: discrete/procedural, continuous

Style: presentation

### The Data:

one set of 15 tracks is given;

each measured event contains the track id, the radius  $r$ , the angle  $\phi$ , the time  $t$ , and the same information in cartesian coordinates  $(x, y, z)$ , as well as the charge

deposit and the particle ID (which was identified as having caused the track, for a list see TPCmontecarlohpp.pdf)

<i>Type:</i>	<b>nominal, ordinal, interval</b>
<i>Range:</i>	<i>See SC3 file!</i>
<i>Organisation:</i>	<b>category, time, location</b>