

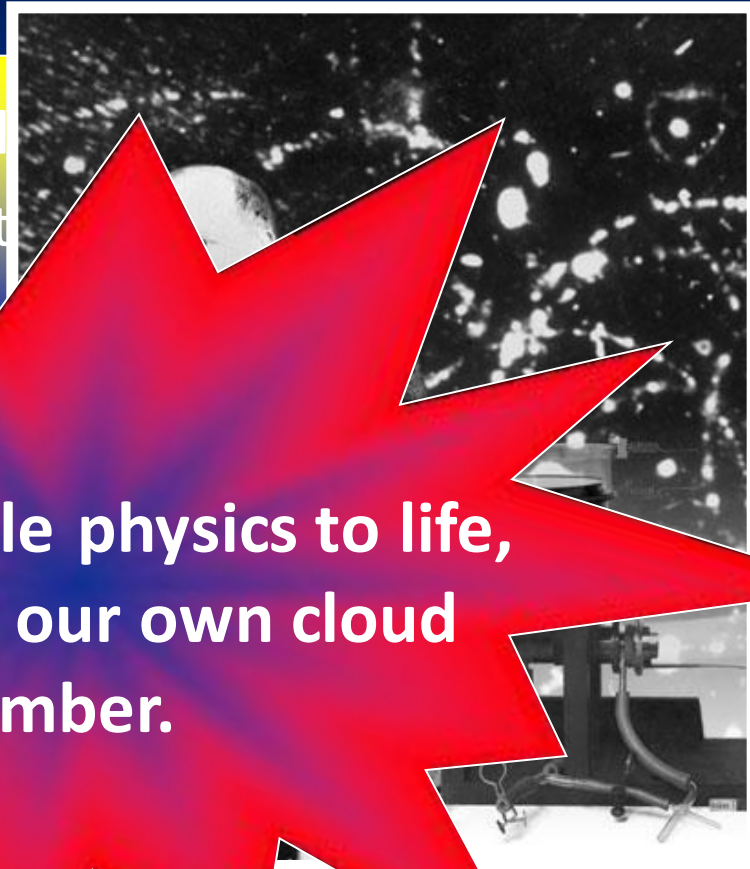
CLOUD CHAMBER

There are more particles

We just needed to

- Pa

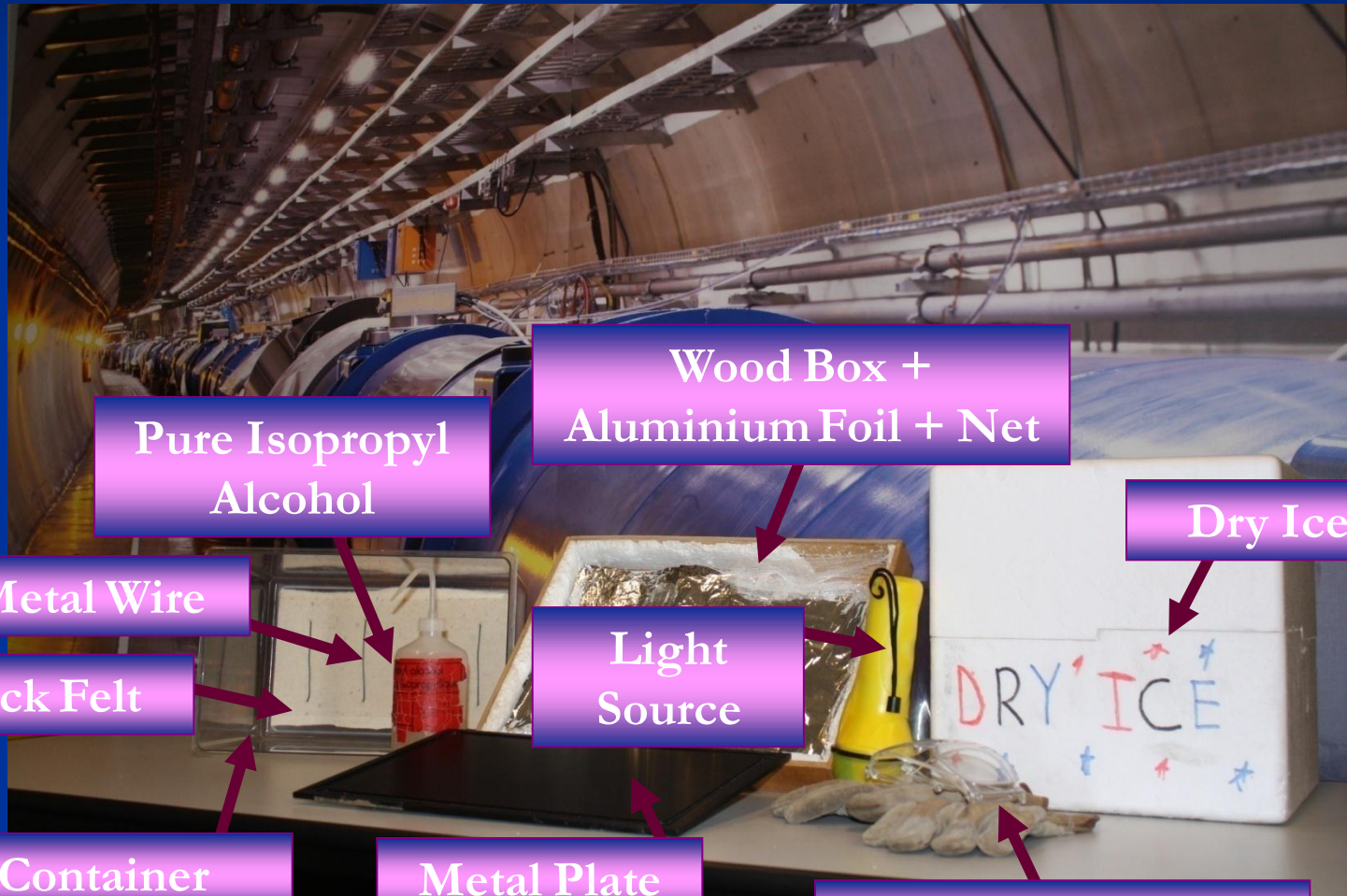
**Bringing particle physics to life,
we can build our own cloud
chamber.**



Cloud Chamber: Robert A. Millikan (Nobel Prize)

Vapors condensate into tiny droplets around ionized atoms along charged particle trajectories.

CLOUD CHAMBER



Pure Isopropyl Alcohol

Wood Box +
Aluminium Foil + Net

Dry Ice

Small Metal Wire

Light Source

Thick Felt

DRY ICE

Plastic Container

Metal Plate

Gloves + Goggles

GSSH's CLOUD CHAMBER



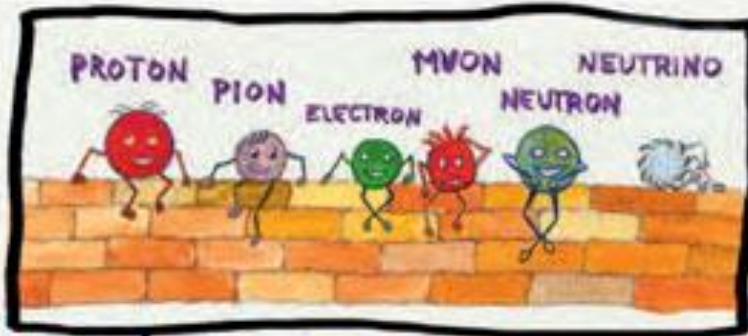
CLOUD CHAMBER



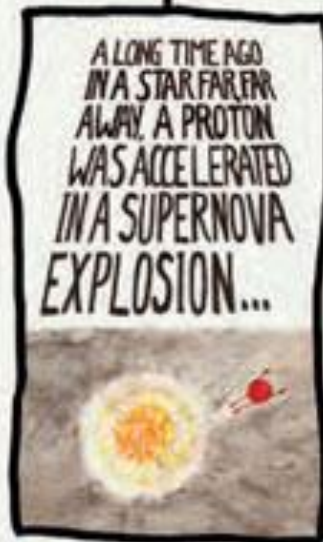
CLOUD CHAMBER



CLOUD CHAMBER



The characters in this story: elementary and subatomic particles

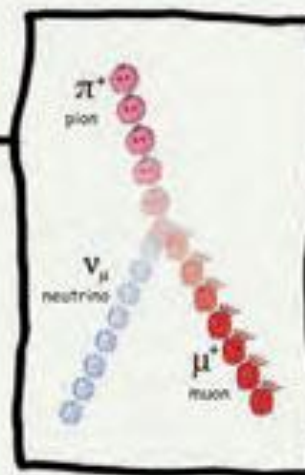


To begin at the beginning: once upon a time there was a proton...

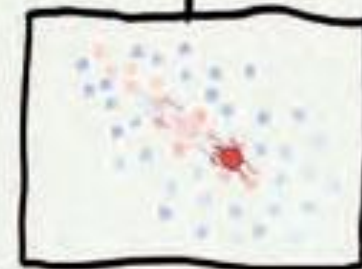


The proton enters Earth's atmosphere and hits an atom, giving rise to new particles, including a pion

The pion keeps on flying and, after a very short time, decays into a muon and a neutrino



The muon is about to enter the chamber!



The muon passes through the chamber, leaving - like a jet - a trail of droplets

CLOUD CHAMBER

Showing your class a working cloud chamber is one of the best ways to generate student interest in modern physics.

Cloud chambers can be used to show students.

Now we are heading back to space, to see what more we can figure out!