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CRYPTIC ONTICS

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OUR TEAM

WHERE WE BEGAN

- How do we know two particles are not one and the same?
- Hermann Weyl suggested the dependence of a particle's properties on the fields present during measurement.
- We wished to study the dependence of a muon's properties on the gravitational field.

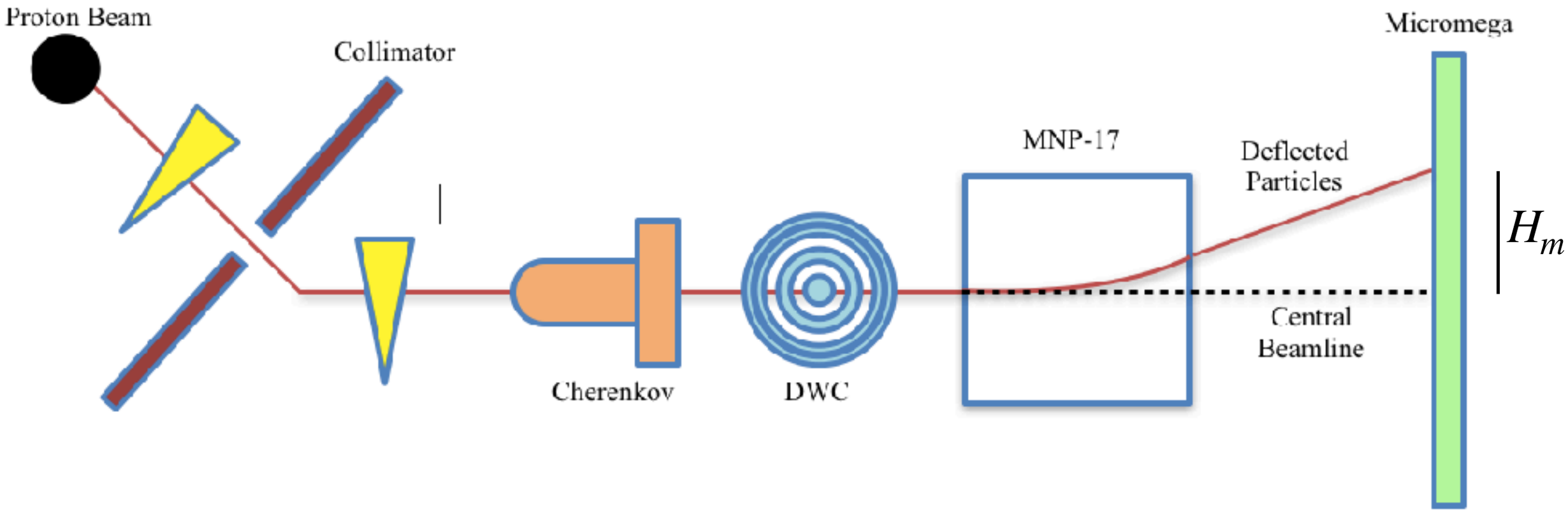
WHERE WE BEGAN

- Gravitational field too weak => Magnetic field
- Why muons?
- Abundantly found

CURRENT AIM

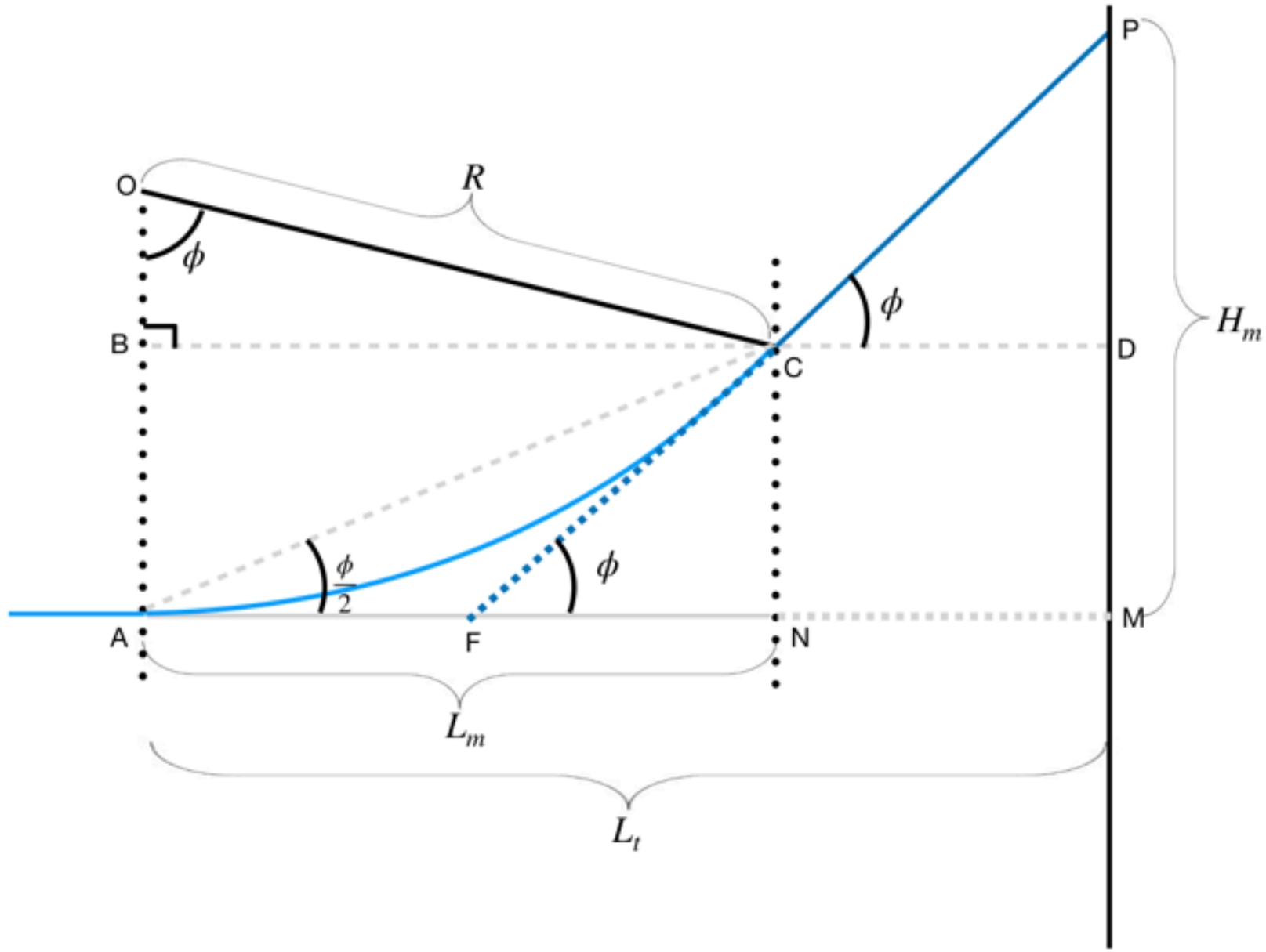
- Difficulty regarding using muons.
- Instead, we will study electrons and other particles.

EXPERIMENTAL SETUP



We shall be using *Micromegas* (gas-based detectors) to find H_m and, eventually, the angle of deflection.

THE DIAGRAM



THE EQUATION

$$L_m tan^3\left(\frac{\phi}{2}\right) - H_m tan^2\left(\frac{\phi}{2}\right) + (L_m - 2L_t) tan\left(\frac{\phi}{2}\right) + H_m = 0$$

ROOT APPLICATION

- In built polynomial root finder function

```
p = Polynomial(Lm,-H,(Lm-2*Lt),H);
std::vector<double> roots = p.FindRoots();
double angles[3];
for (int i = 0; i < 3; i++){
      angles[i] = 2*atan(roots[i]);
}
```

POTENTIAL DEVELOPMENTS

- Anti-matter charge calculation.
- Micromega precision calculation.
- Improving Hall effect magnometers.

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Thank You!