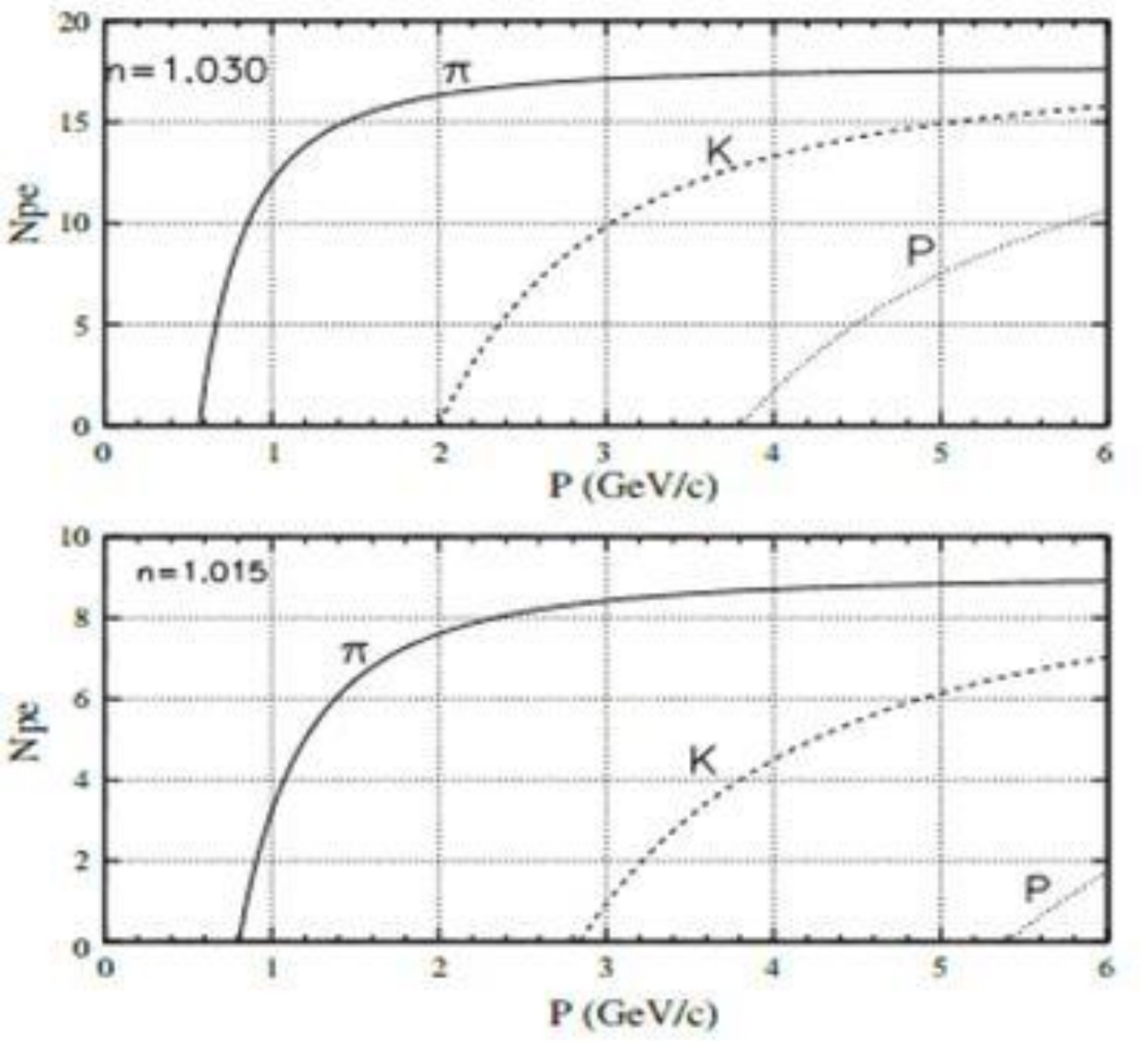
Aerogel Refraction

- Overall Purpose: to identify the particle shot through the aerogel into detector
- Method:
  - Identify the refractive index (n) experimentally
  - Using the refractive index it can be calculated what momentums are best to test and therefore which particles to look for
  - Then, depending on the read of the photon-electrons found through the PMTs it can be determined what the particle is


n=1.030
π
K
P
Npe
P (GeV/c)
n=1.015
π
K
P
Npe
P (GeV/c)

Projects

1. Test aerogel to find refractive index
2. Build humidifier
3. Test how humidity affects aerogel

Finding refractive index
Result: n

1. Set up laser and angles
2. Place aerogel in holder
3. Shoot laser at corner of aerogel
4. Measure the refraction
5. Repeat for each corner and each aerogel

Humidify

1. Research, plan, and build humidifier
2. Test humidifier to ensure accuracy
3. Using a control group, test the effects of humidity on aerogel's index of refraction

Test affect of humidity
Result: modified n

Using a control group, test the effect of humidity on aerogel's index of refraction.