# dRICh very preliminary porting of the geometry into CORE

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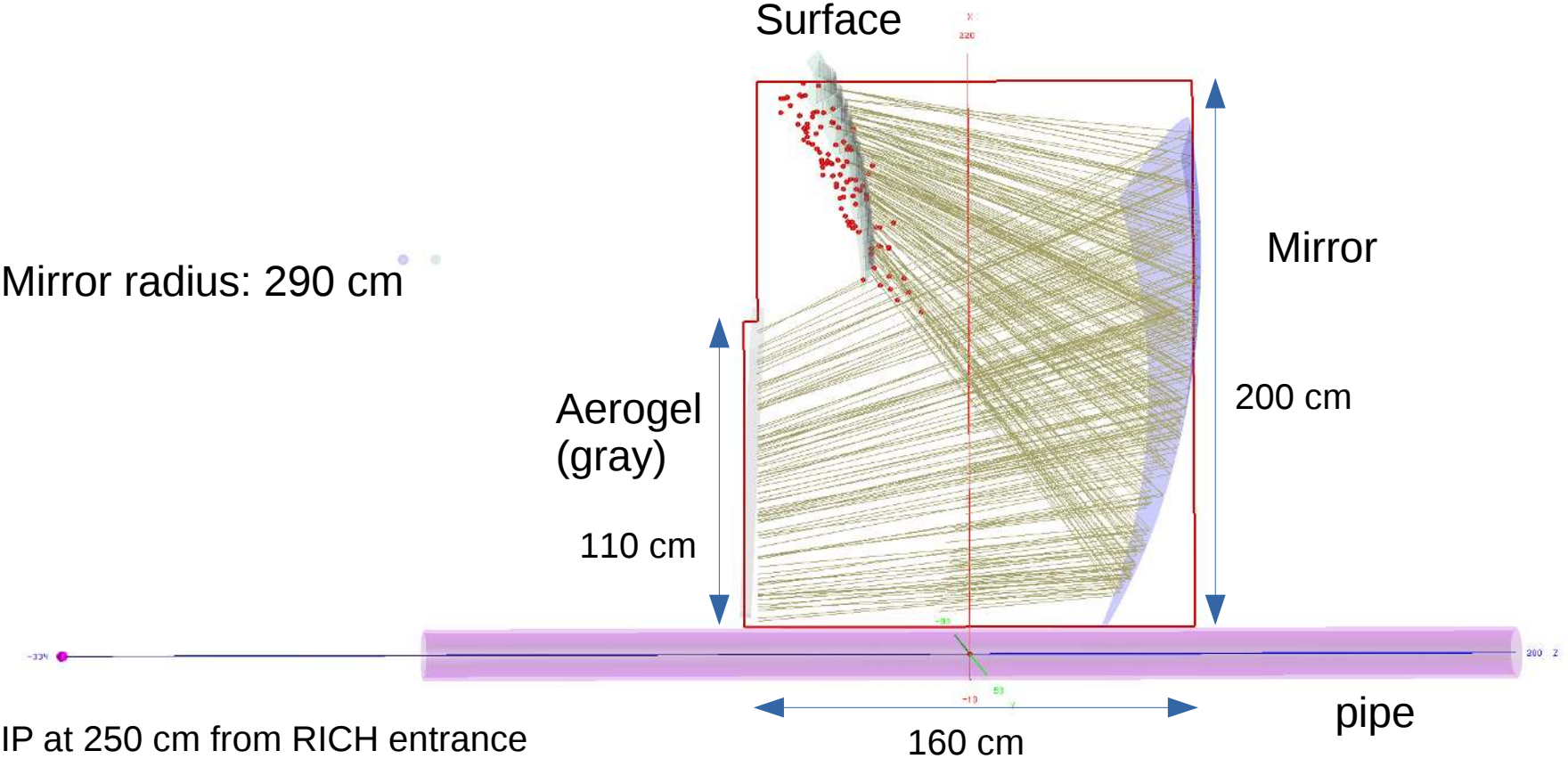
(use a simple optical raytracer to get an approximate position of the focal region)

# Original JLEIC dRICh (single sector)

red dots: focal region (approx.)
yellow lines: photons at gas Cherenkov angles relative to charger particles direction from IP

red line: JLEIC dRICh vessel profile

Mirror radius: 290 cm




IP at 250 cm from RICH entrance

# CORE (single sector) – Optical Raytracing

Light green: photosensor (spherical) surface

Red Points: focal region (estimated from Cherenkov gas photons)

Blue: (spherical) mirror

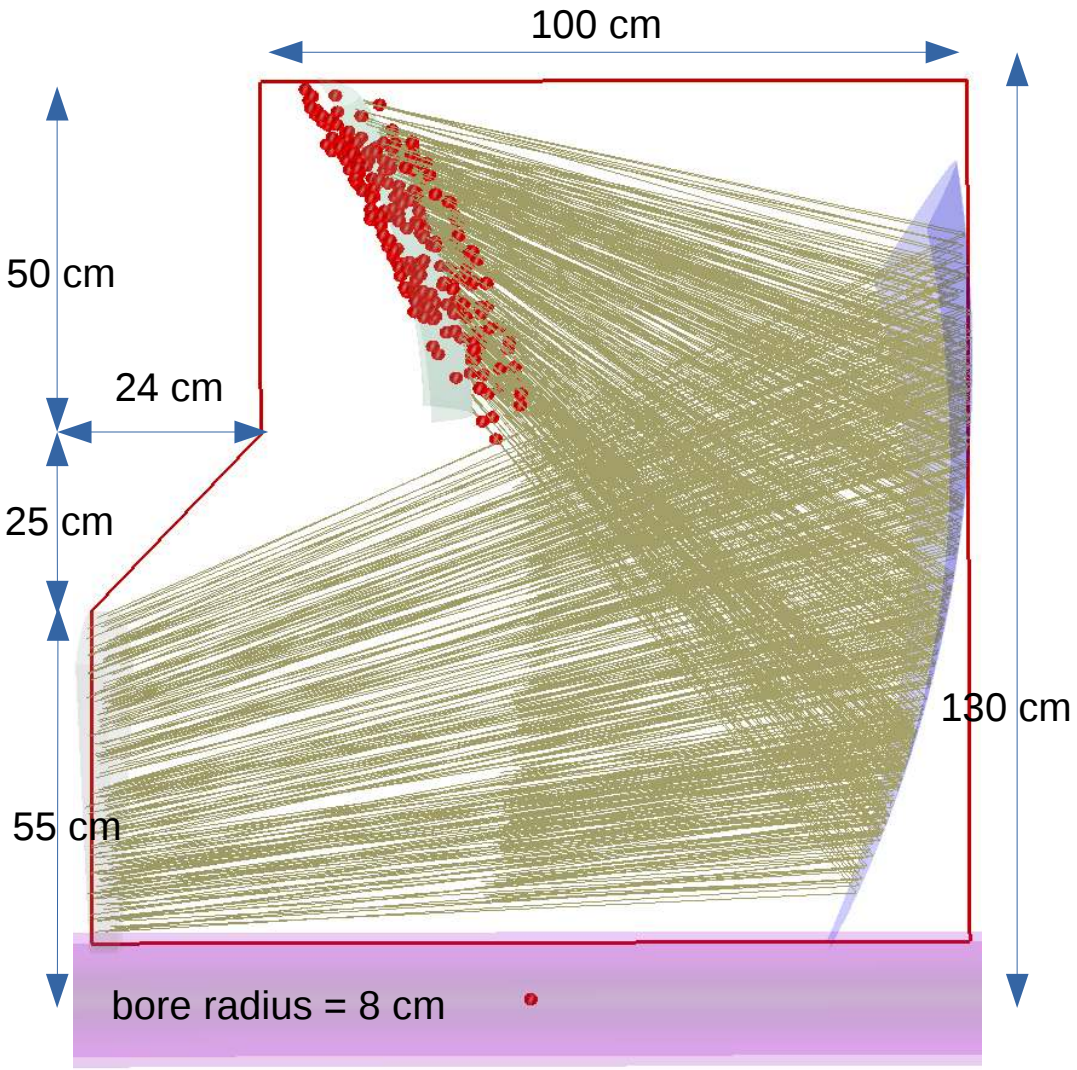
Red line: CORE dRICh approx. single sector vessel profile

Yellow lines: Cherenkov photons emitted on the gas by charged particle coming from the IP

Mirror radius: 180 cm

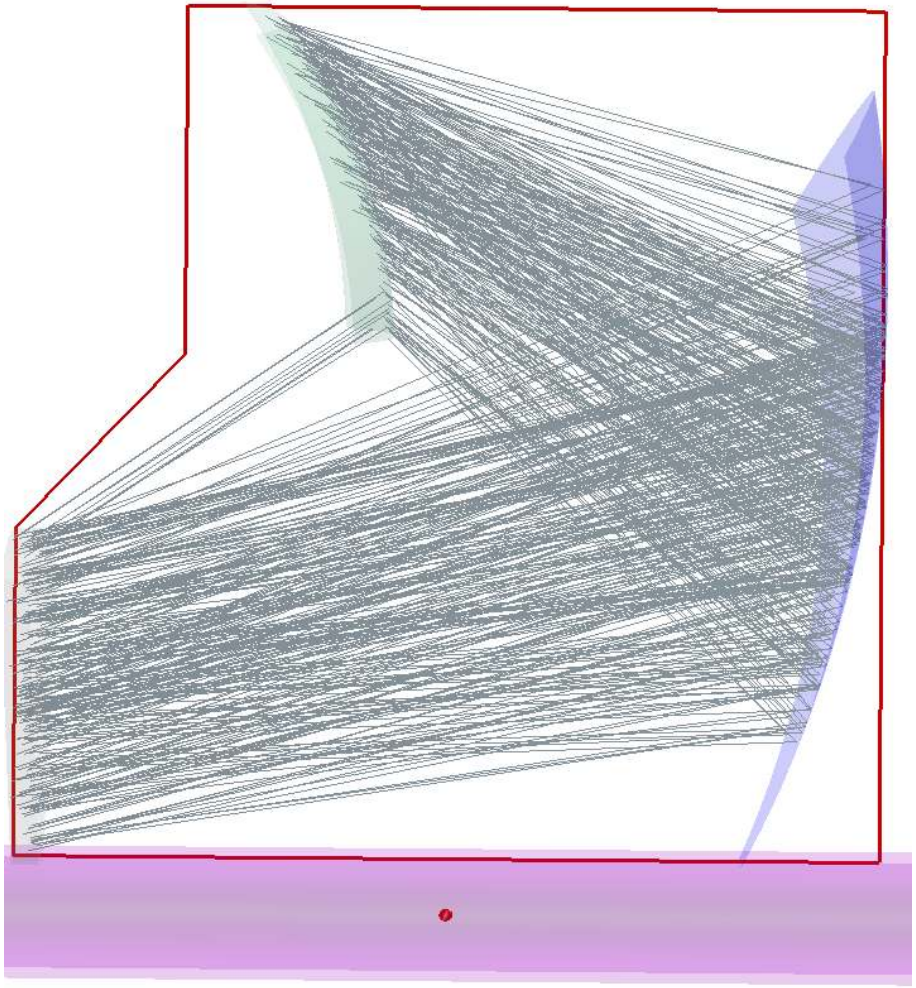
Grey: aerogel wall

IP – dRICh Entrance = 125 cm



# CORE – aerogel Cher. Optical RayTracing

Grey lines: Cherenkov photons emitted on the aerogel by charged particle coming from the IP



Quick comments:

- **Geometrical constraints of CORE look more “dRICh friendly” than ATHENA and ECCE**
- Photosensor surface match focal region pretty well (previous slide)
- There is reasonable space for geometry improvement (e.g. move upstream sensor and possibly mirror to avoid interference of aerogel photons at high polar angle)
- Particle path in gas looks adequate
- Smaller mirror radius may increase aberration errors