ND280 Upgrade

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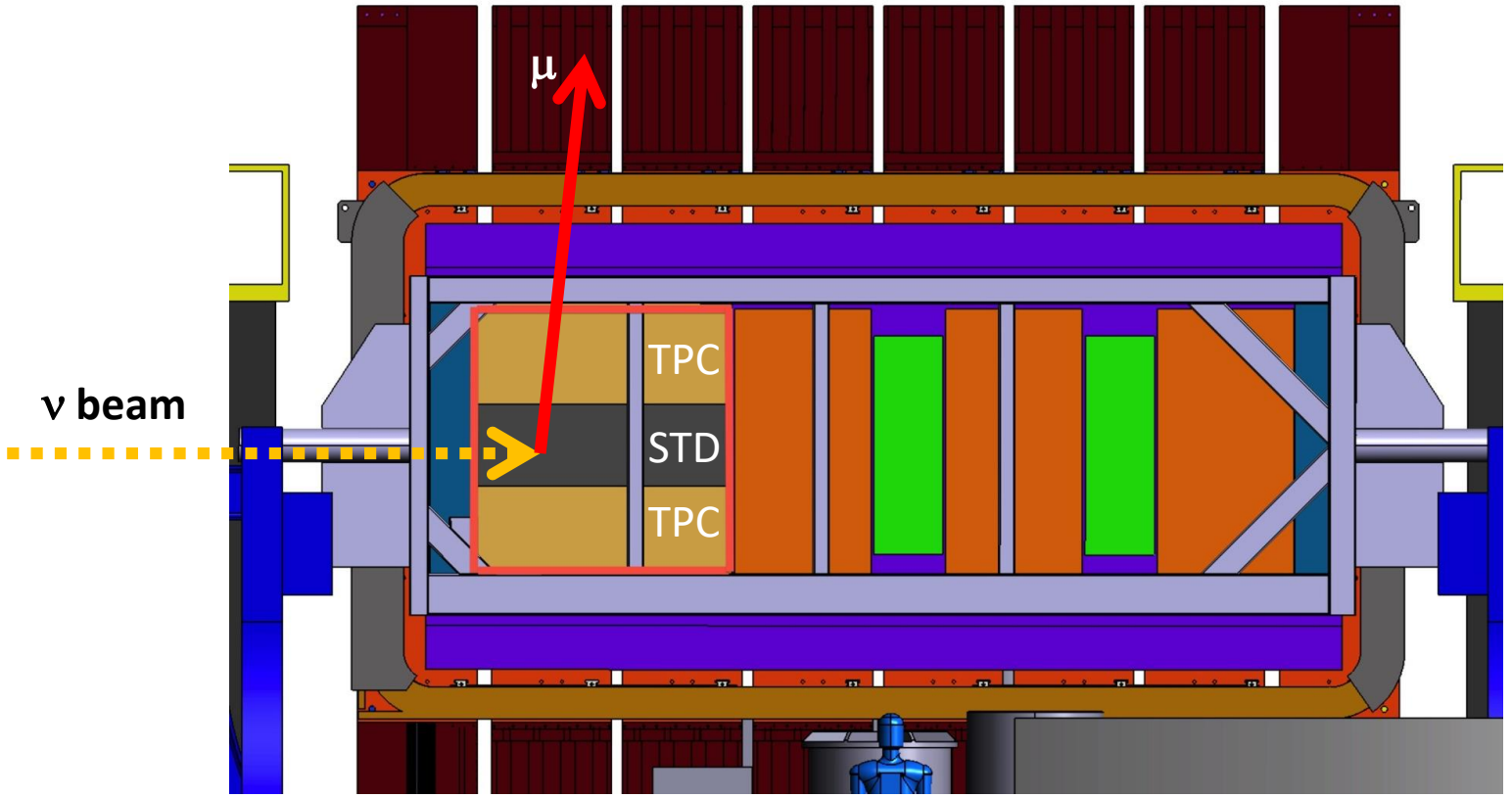

TPC Principle

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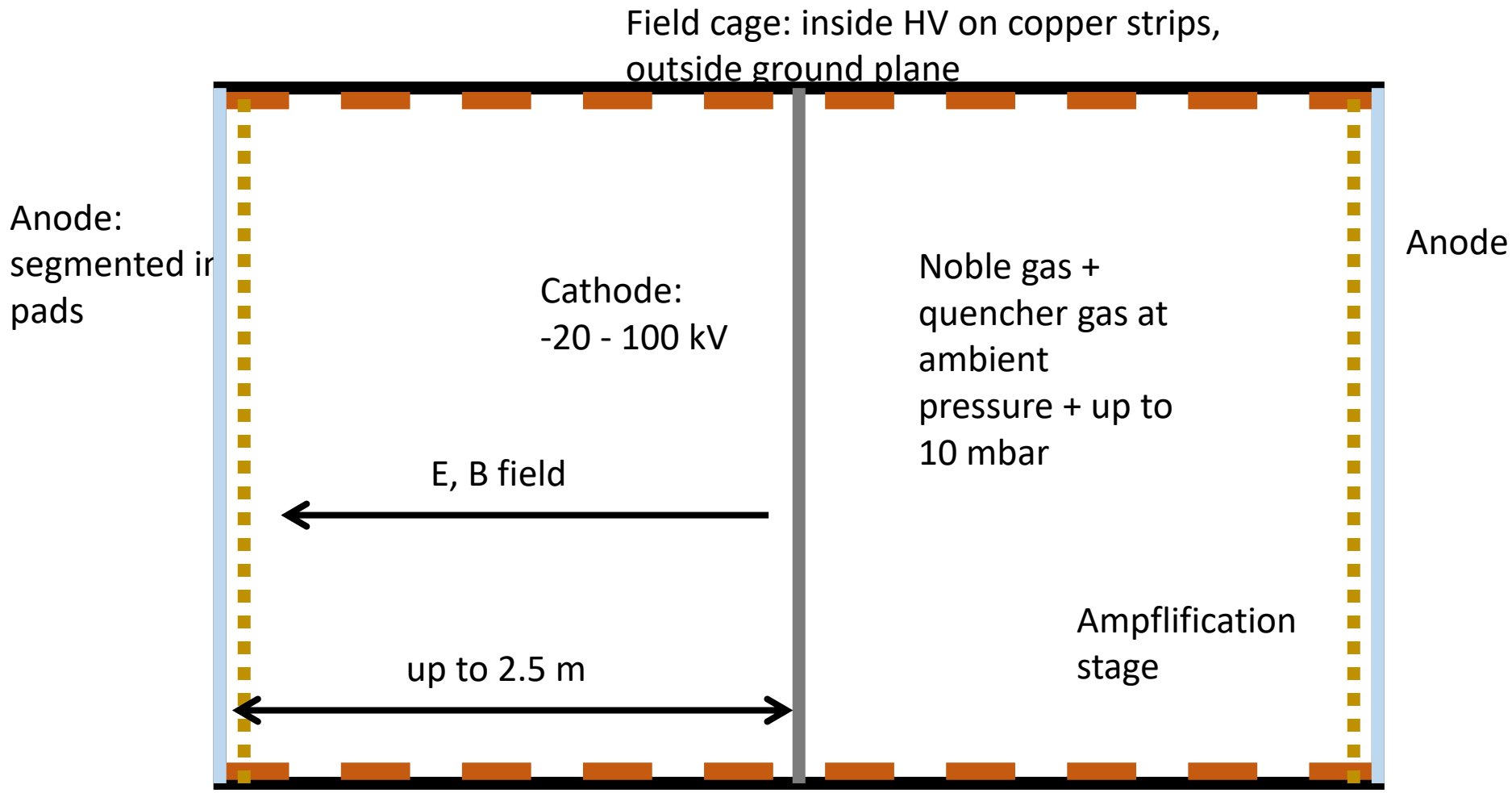

TPC Principle

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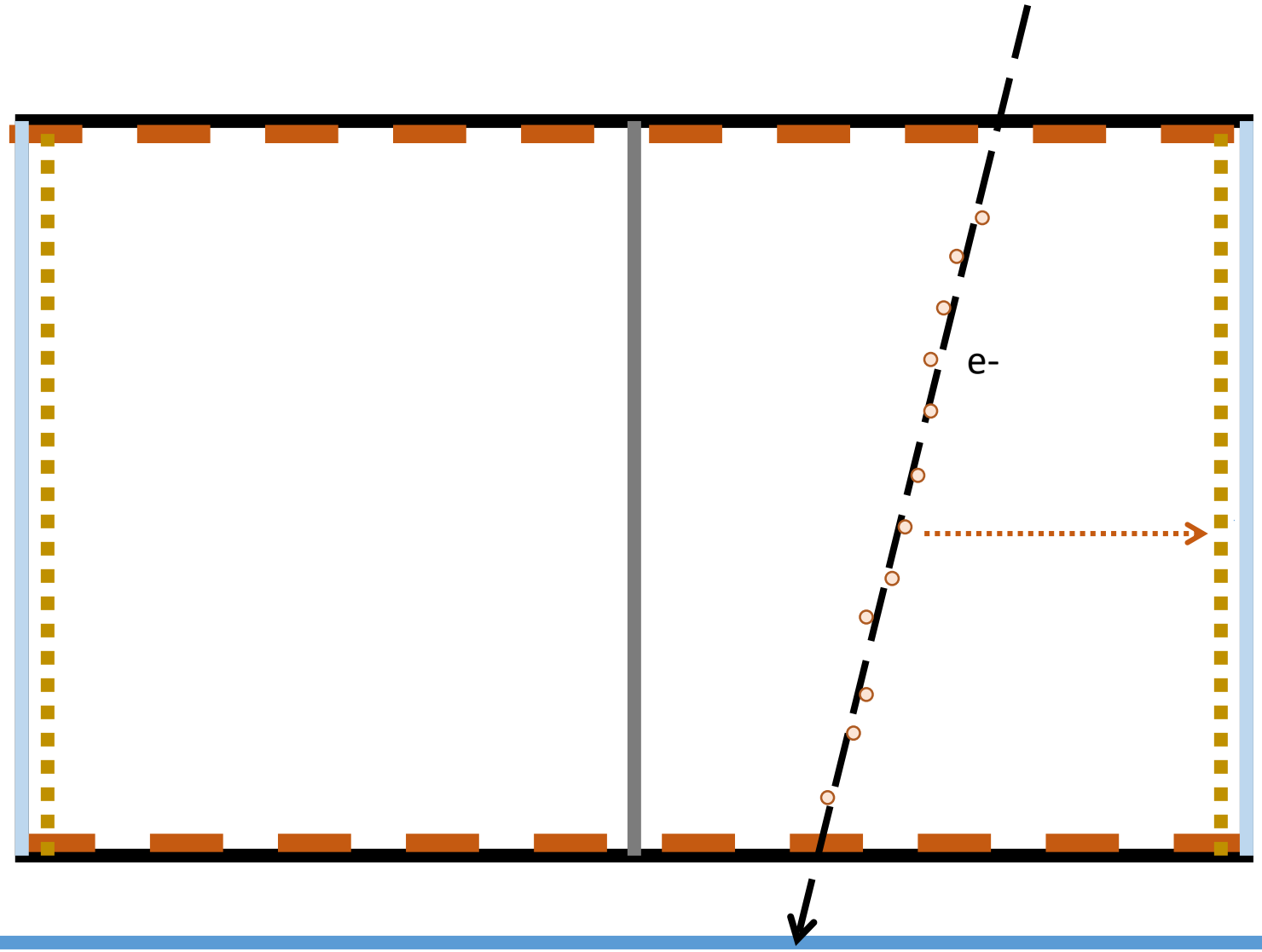
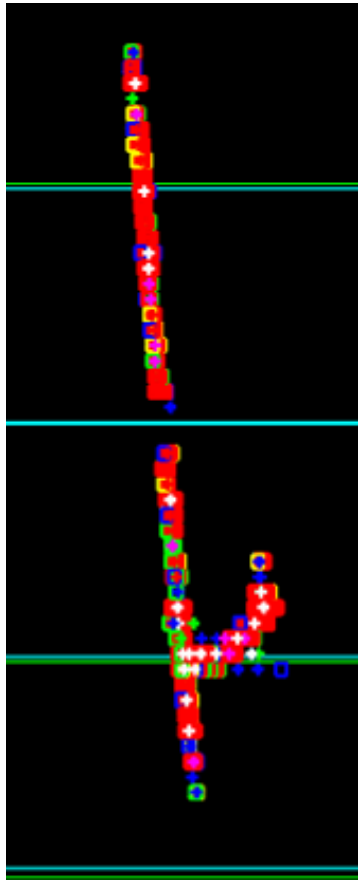


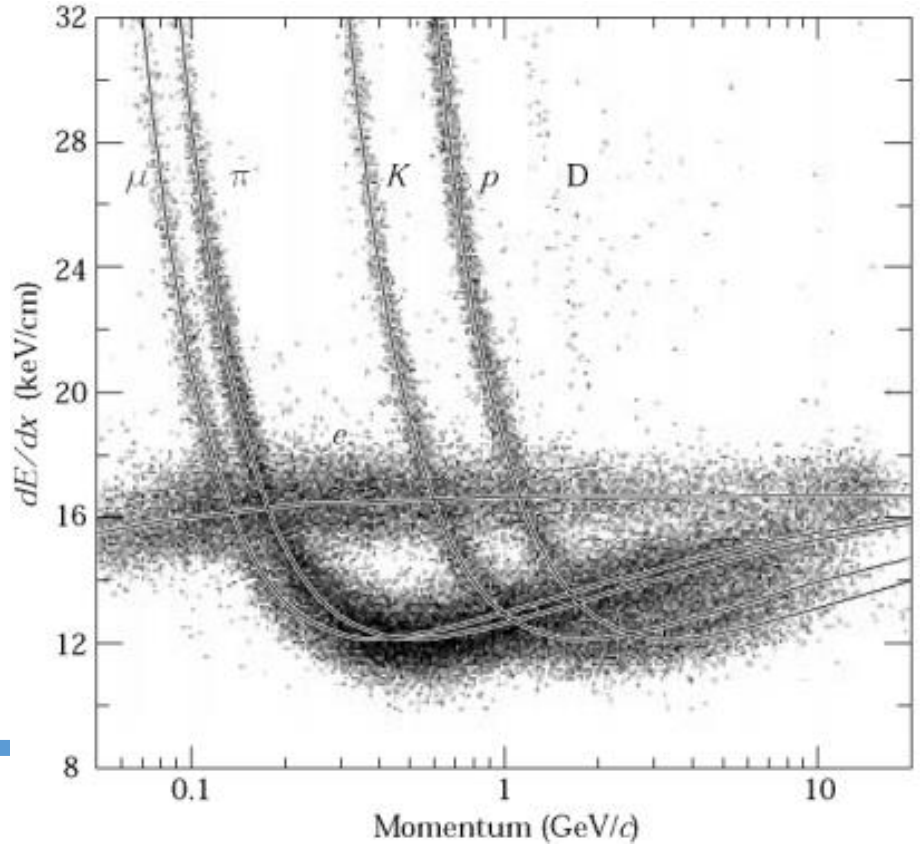


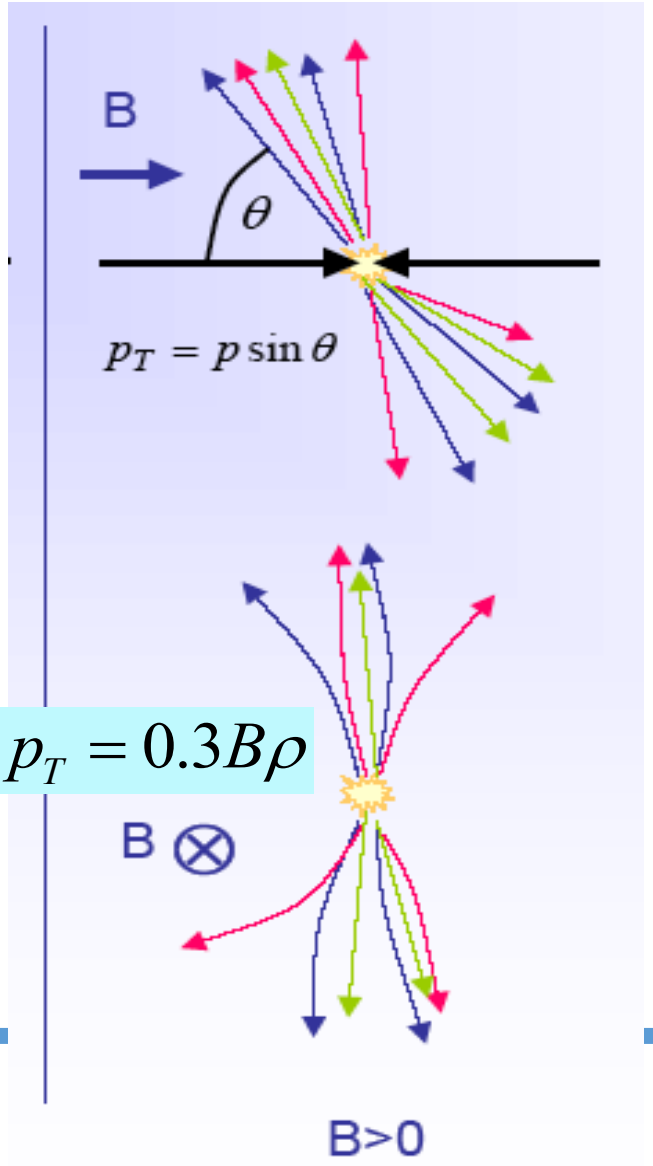
TPC Principle

$$p = p_\perp / \sin\theta = p_\perp \sqrt{1 + \cot^2\theta}$$

- momentum from track reconstruction
- dE/dx from deposited charge along track

=> Particle identification (PID)





TPC: Field Cage

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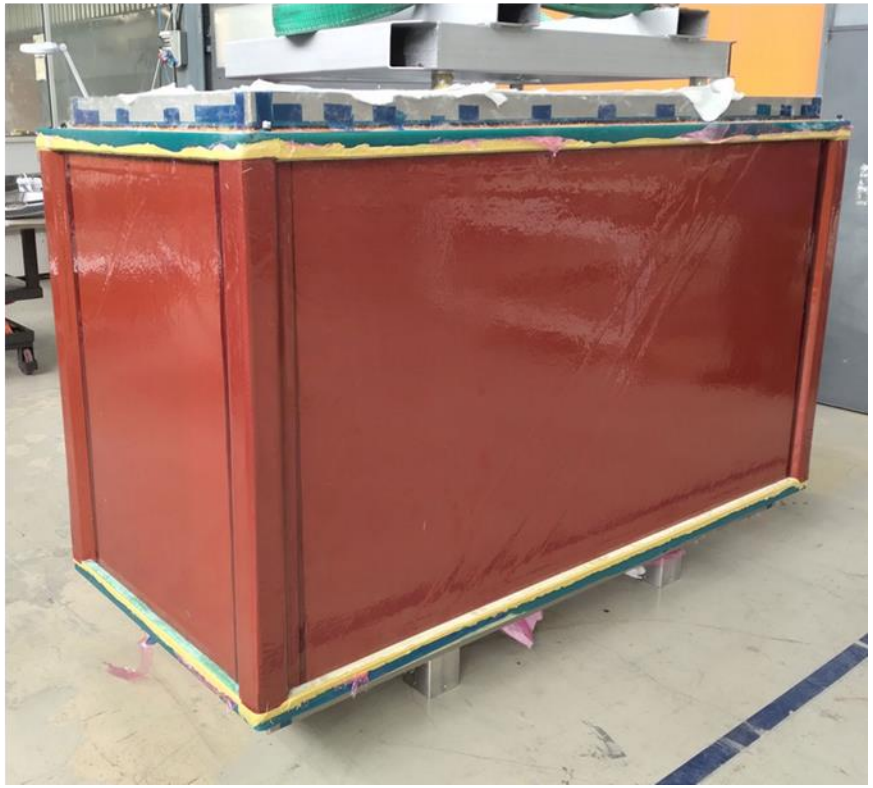
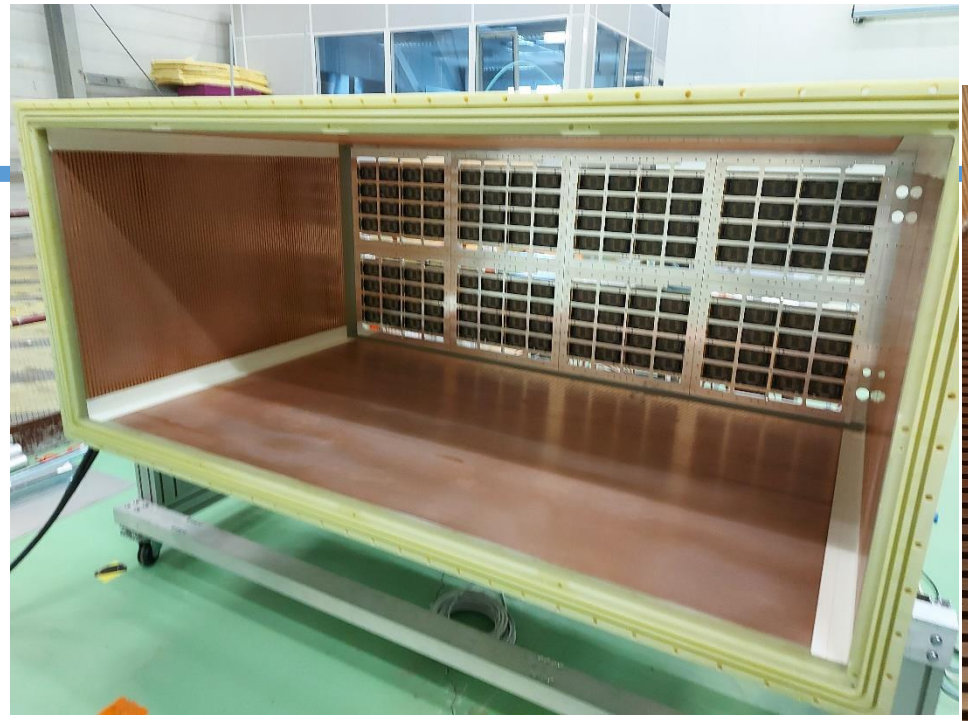
- Procedures went well during weeks 38 – 42 at the NEXT company (Spain)
- Weeks 42-46: search for new milling company → found close to Nexus

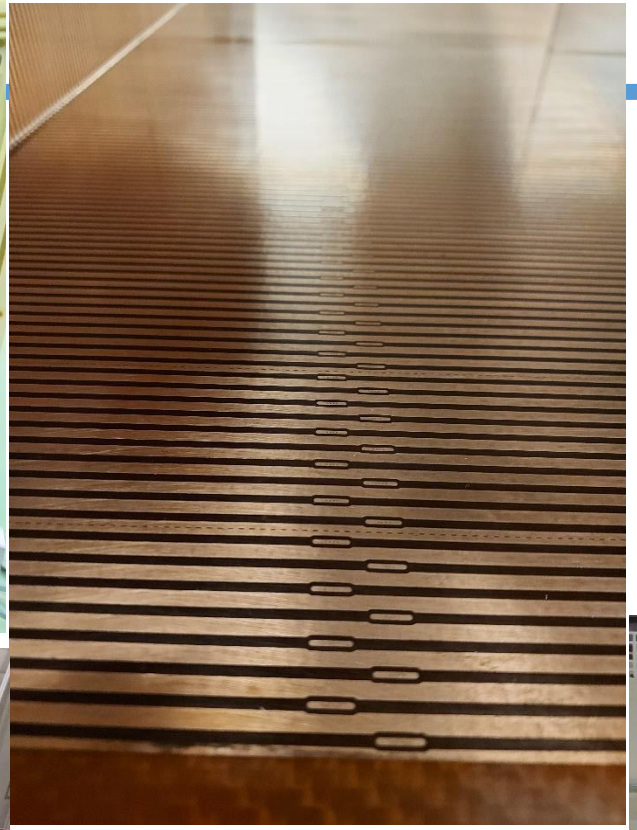
Strip foil, wrapping & alignment

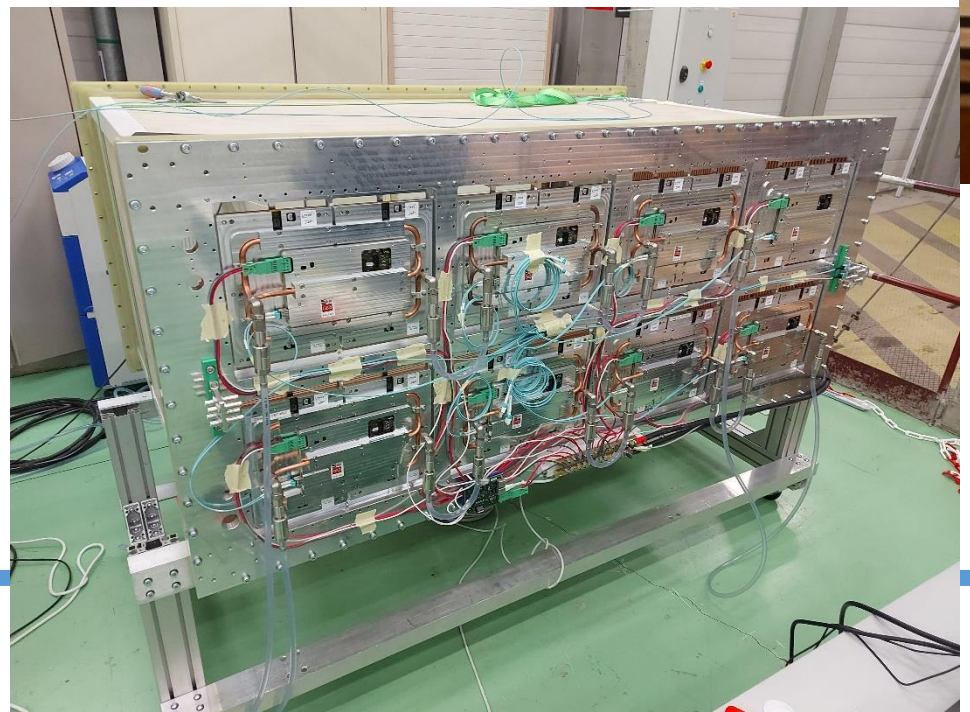
Resin casting

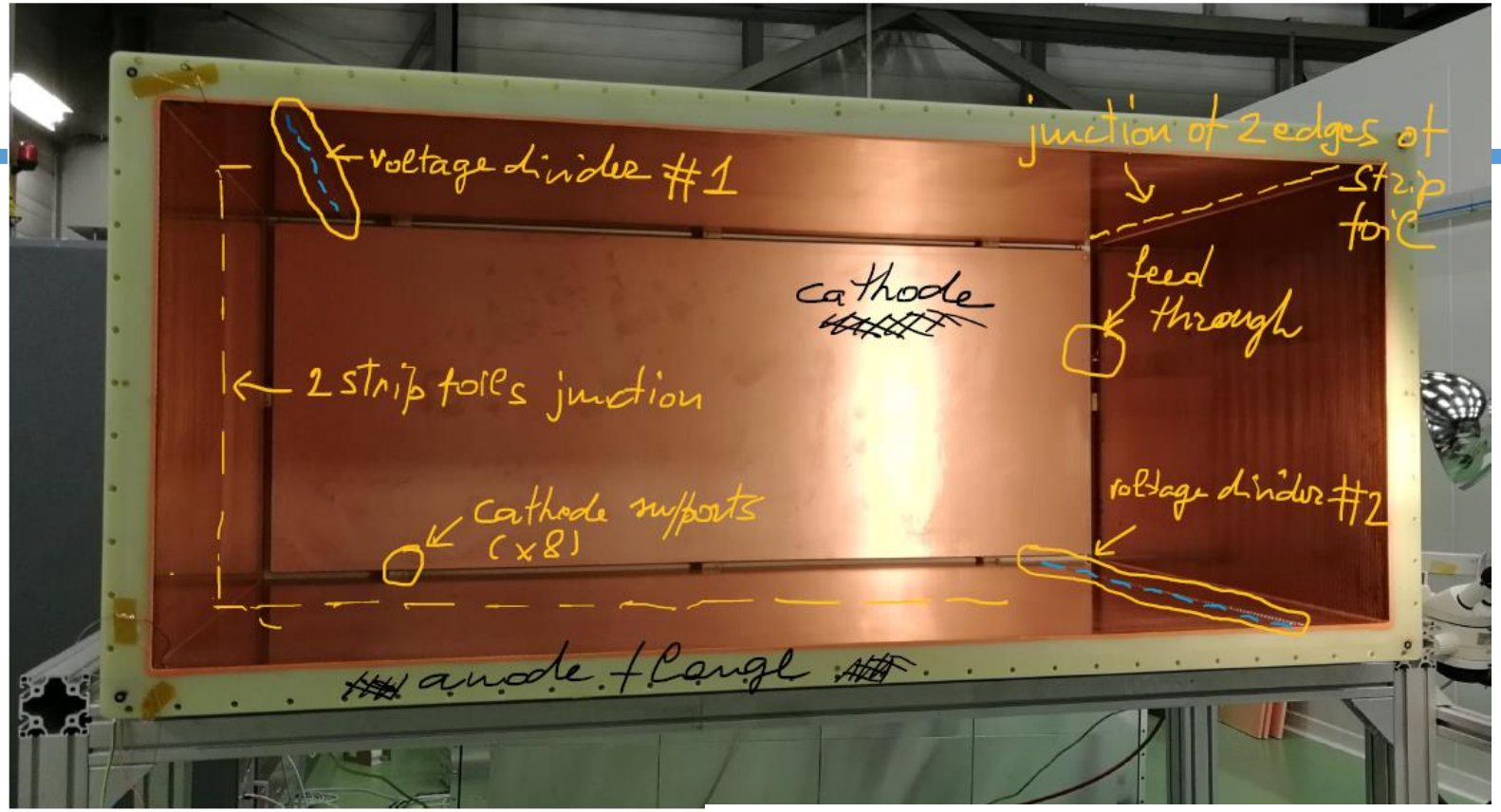
Field Cage with mold before flange machining

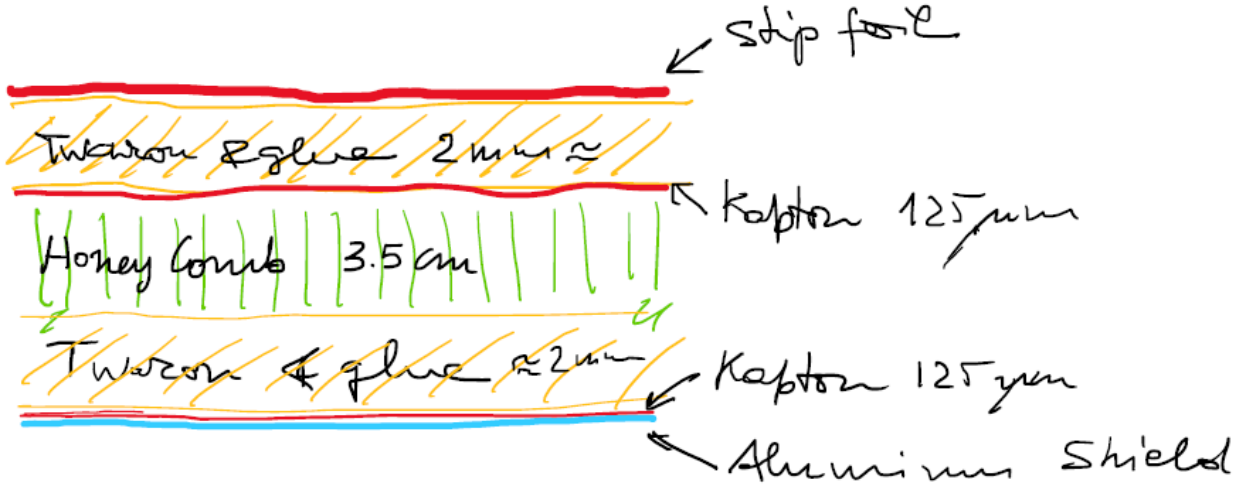









voltage divider #1
junction of 2 edges of strip foil
cathode
feed through
2 strip foils junction
cathode supports (x8)
voltage divider #2
anode + Cough


strip foil
Twaron & glue 2 mm ≃
Kapton 125 μm
Honey Comb 3.5 cm
Twaron & glue ≃2 mm
Kapton 125 μm
Aluminum Shield

Field Cage details –

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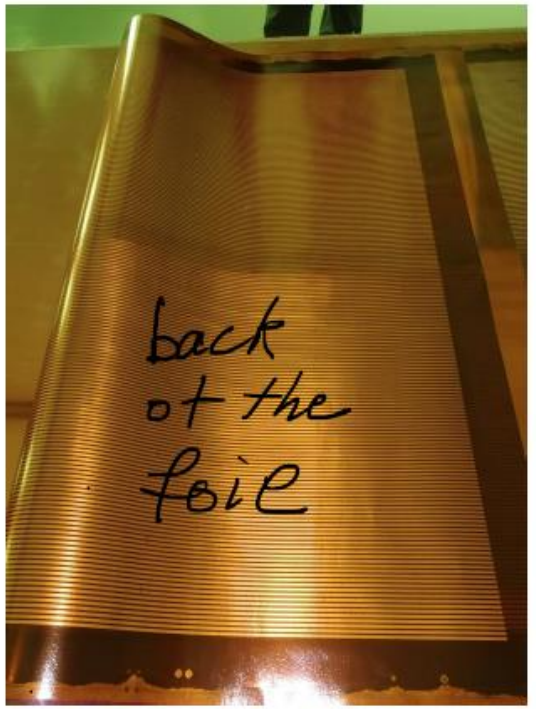
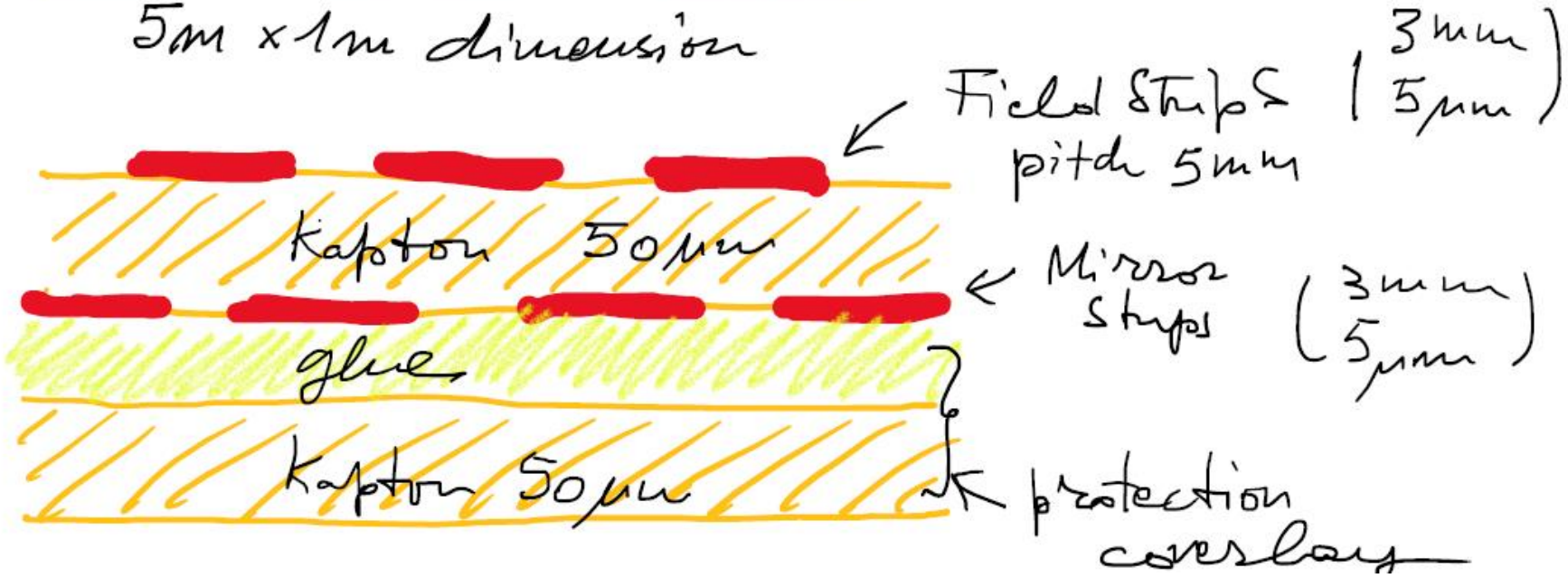
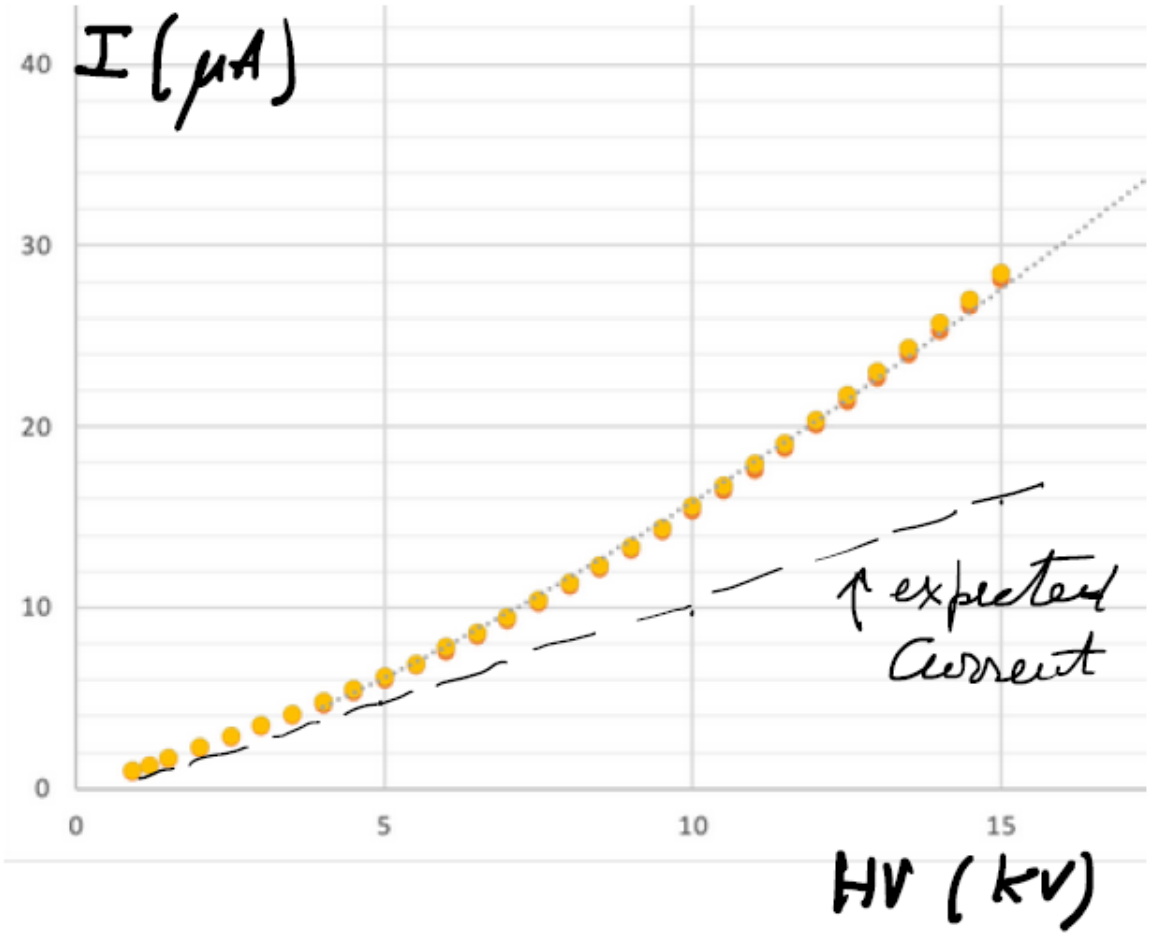
5m x 1m dimension





Field Cage Closed and Argon flux for two days -> HV Ramp up



Dividers R = 1 GΩ

HV	I expected	I extra
5 kV	5 μA	0.8 μA
10	10	6
15	15	18
20	20	30
25	25	45

Reproducible I values (up to 25kV… when hysteresis happened)