Toward a TPC for CEPC TDR - Beam test at DESY

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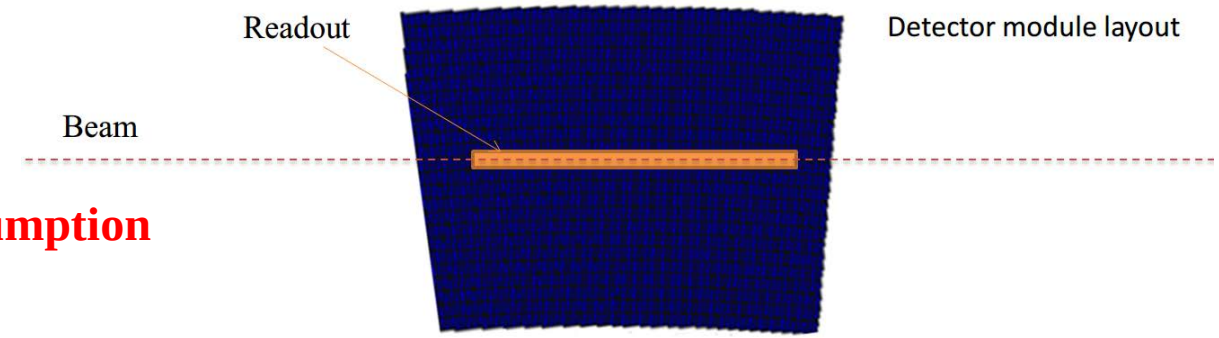
Some critical simulation and validation

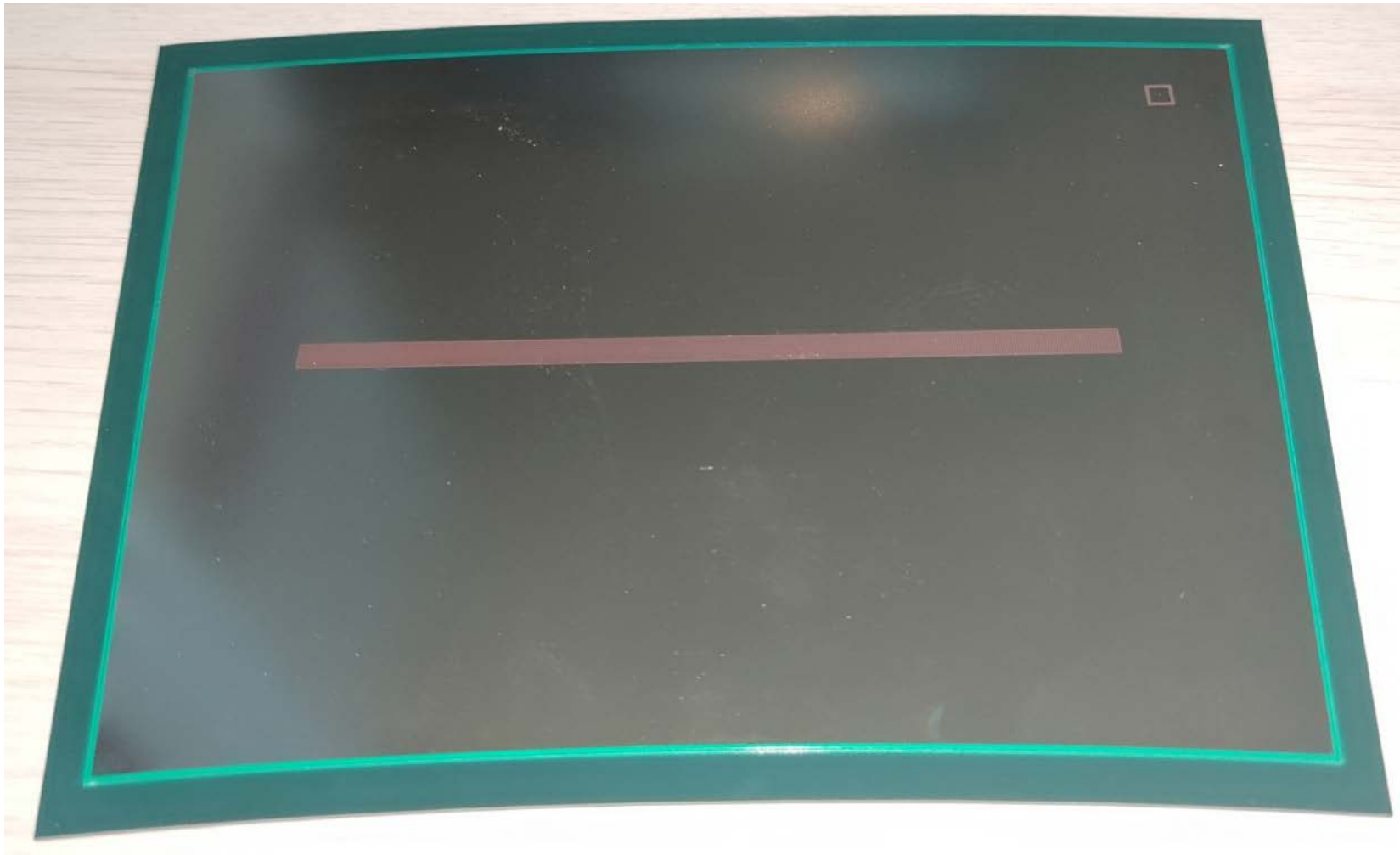
- **Pixelated readout TPC can be as a realistic and promised track detector in CEPC TDR, some key issues will be simulated and validated.**
  - **Material budget at endcape/barrel**
  - **Occupancy and hit density**
  - **Improved dE/dx+dN/dx**
  - **Ion backflow suppression**
  - **Reasonable channels and power consumption**
  - **Running at 2 Tesla**
  - **Beamstrahlung and distortion**
  - **Cost estimation**



- **LCTPC (Lepton Collider Time Projection Chamber) collaboration will continue to push this technology to e+e- collider.**

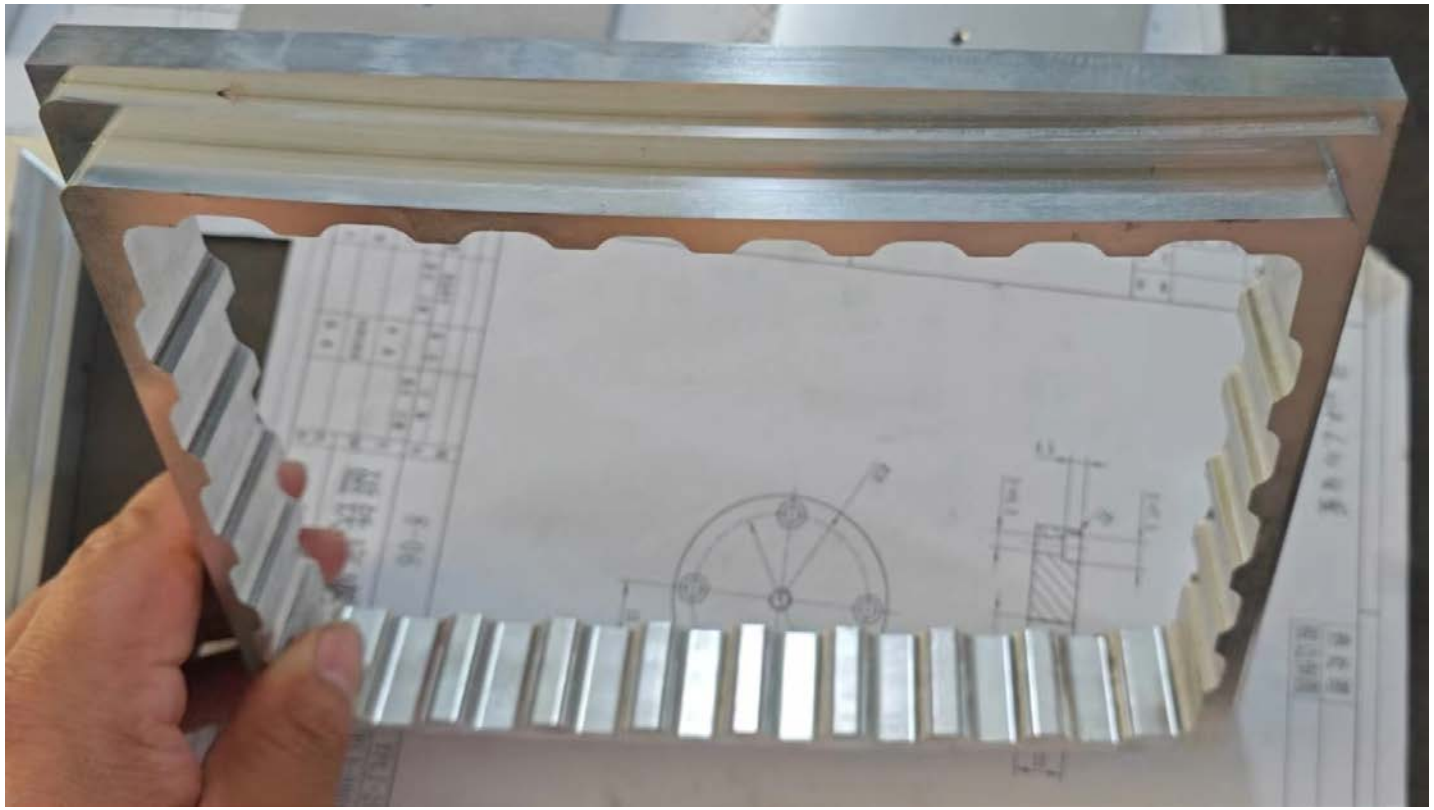
Progress on the PCB design

- PCB material： TG230 (耐温230摄氏度)
  - PCB Processing has been **done and arrived** in this week.



Module of the beam test

- Four Aluminum backframes have been processed.
  - Machining contract has been signed and two backframe will be done.
  - **O ring has been selected using 2.3mm**



材料：6061-T651，无磁高强度铝合金材料

技术要求：

1. 高强度密封支撑件设计按照需求老师的需求，外形尺寸 220mm ×175mm，加工所有表面和孔，留出 0.8mm 额外材料进行热处理。
2. 200+-5℃,保温 6 小时以上，取出空冷完成热时效处理
3. 精加工到位，加工精度 0.05mm。
4. 表面导电阳极氧。
5. 销钉孔位采用负公差加工，加工精度小于 0.050mm。
6. 密封 O 圈采用硅氟橡胶材质，完成预安装调试。

Module of the beam test: Next steps

- 1. Preparation of pixelated readout FEE, Status and plan ?
- 2. Readout PCB, Status and plan ?
- 3. Simulation of tracks, on going.
- 4. Data structure, Status and plan ?

- Others discussion.

Many thanks!