Design & Drawings of pRad GEM Chamber

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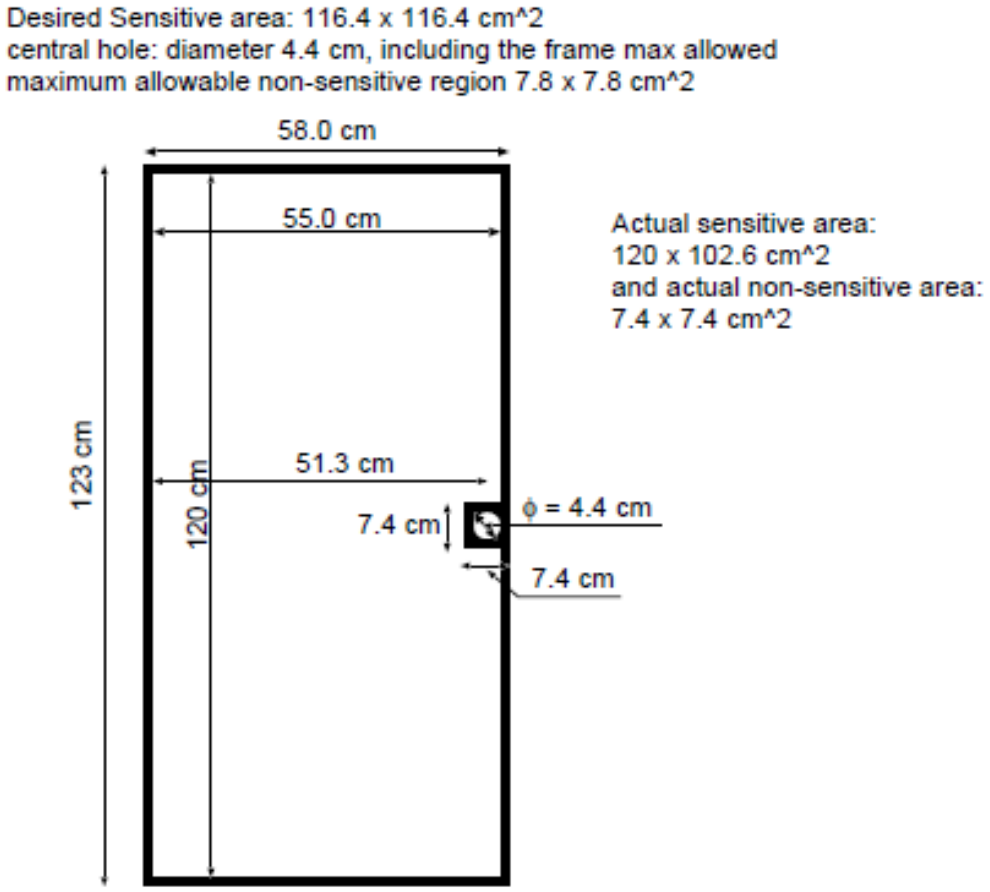
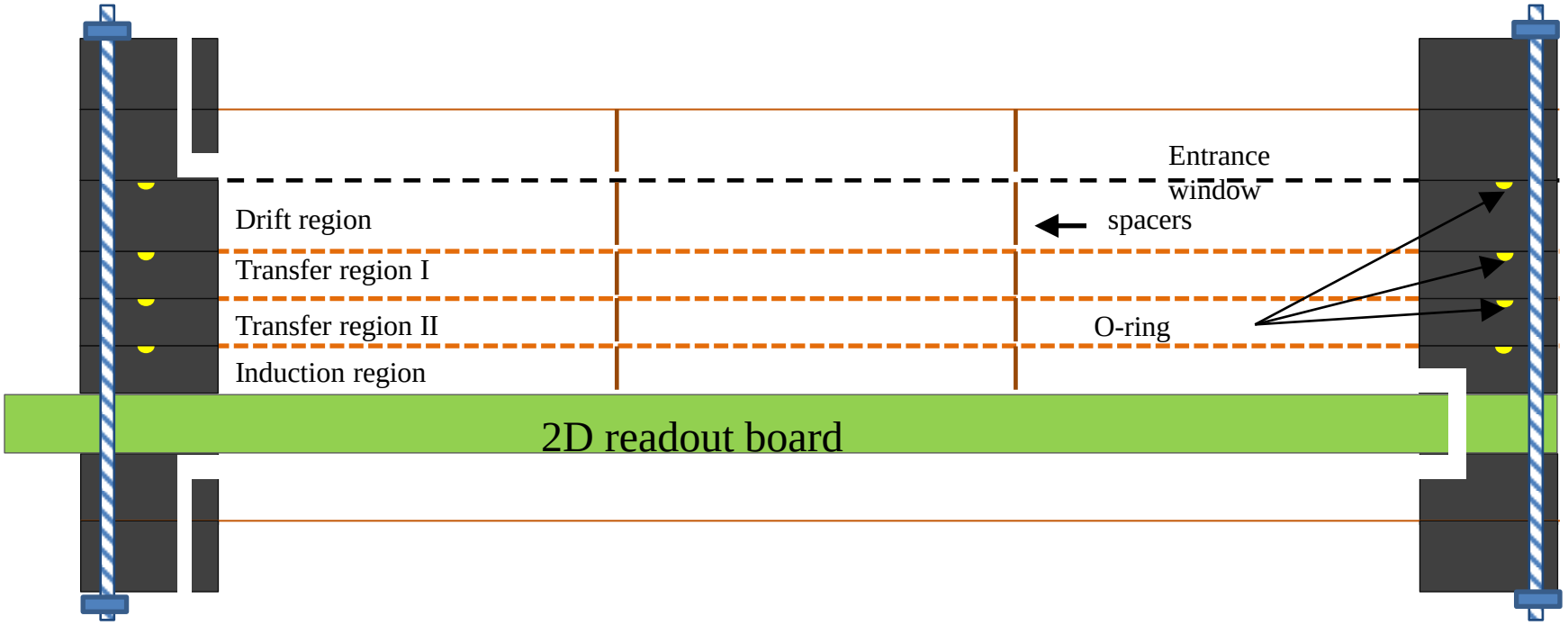
Starting point for pRad GEM

- Initial drawings and dimensions from Dipangkar
- frame width max 1.5 cm in inner part of the chamber
  - Raw material Kapton width, 61 cm
  - Limitation of the max active area to 55 cm in the shorter side
- No limitation on the longer side => 120 cm active area



Cross section of the pRad triple GEM

- COMPASS like triple GEM (3-2-2-2), design similar to the SBS 60x50 GEM module
- "Re-openable" chamber after assembly
  - GEM foil glued to their spacer frames Framed not glued, screws and O-ring for gas tightness
  - Chamber could be re-opened => critical for large chambers with large numbers of HV sectors
- New gas flow system
  - additional gas window at the bottom of readout support to maintain uniform induction gap

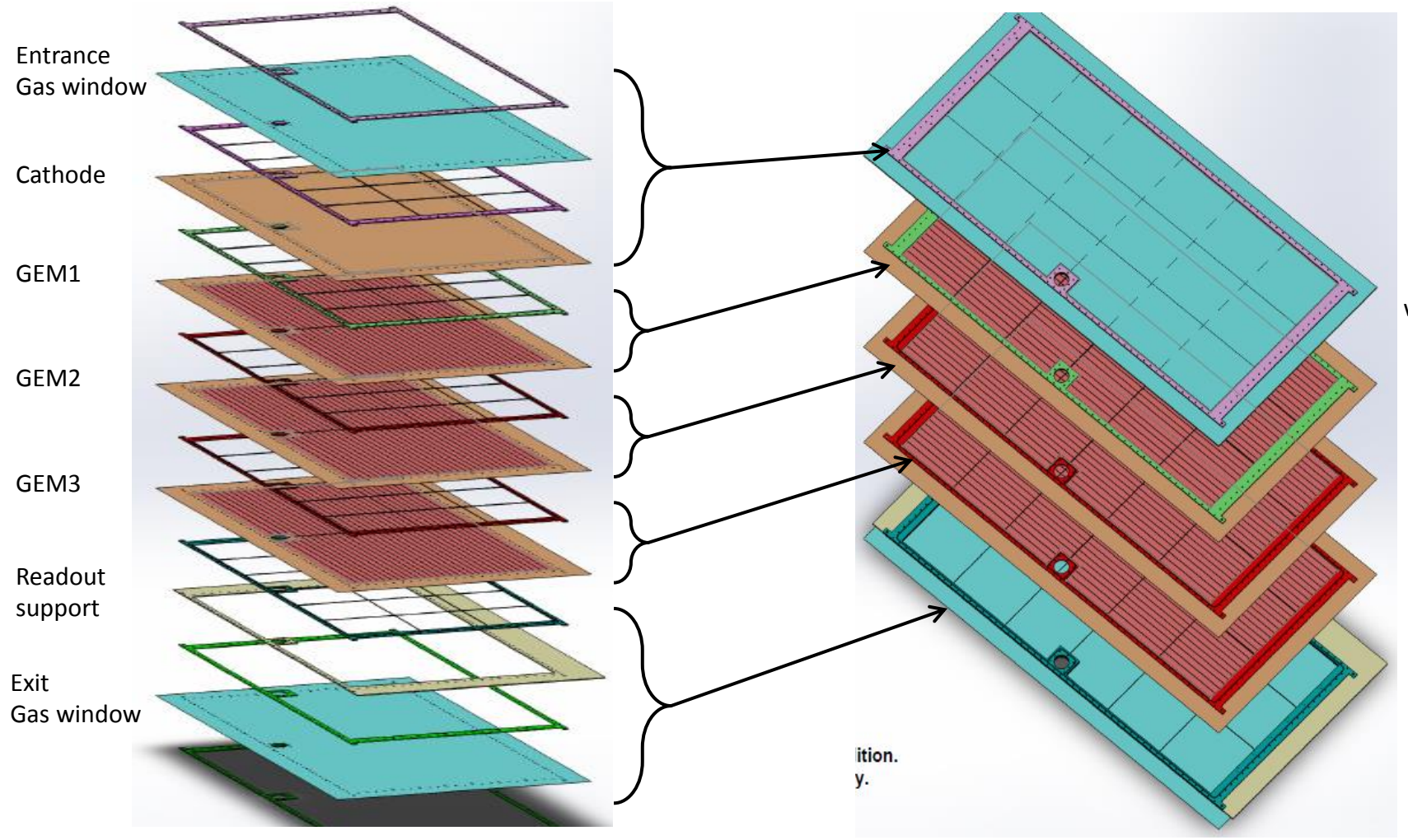


Exploded view of the Chamber parts

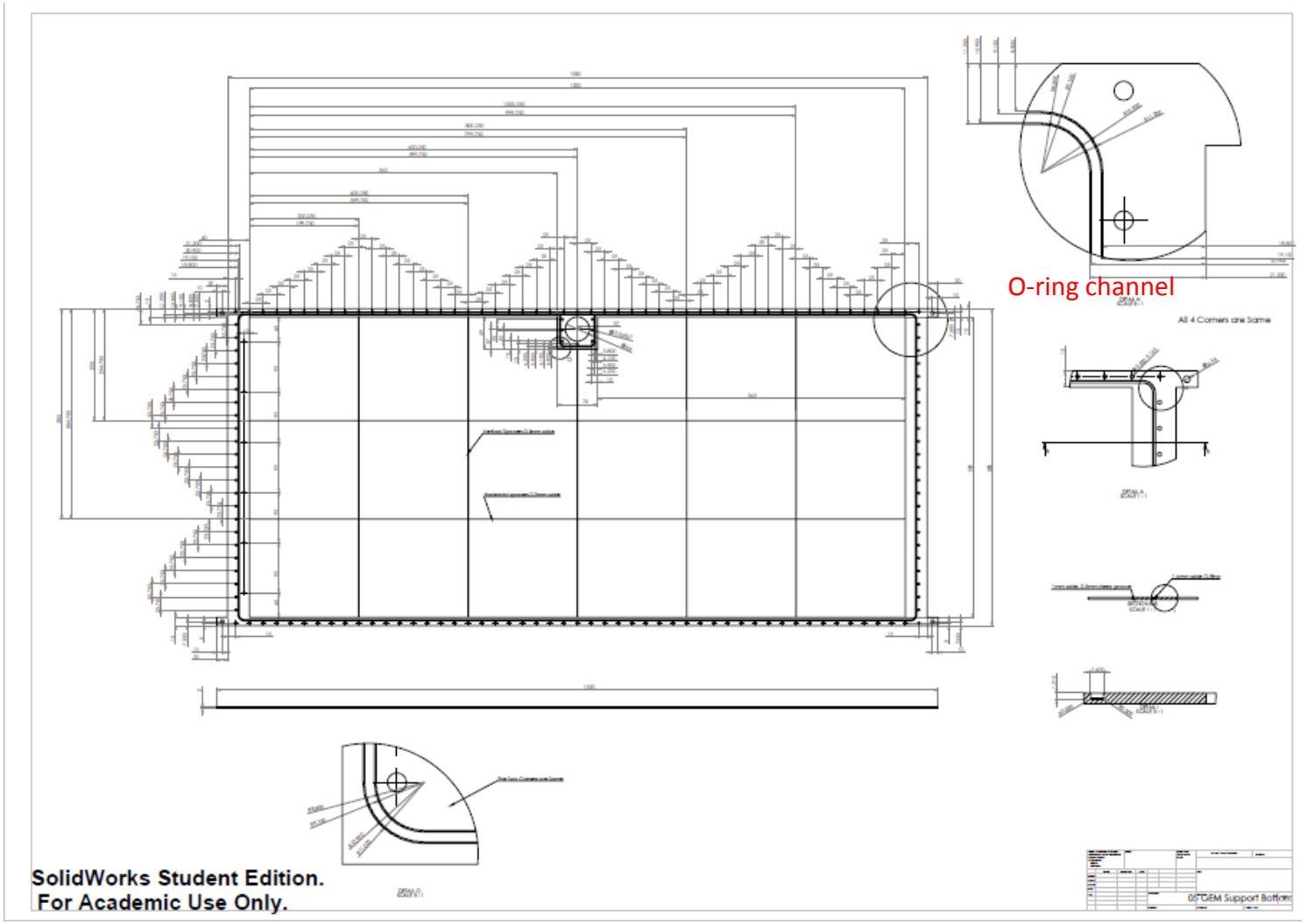
All SolidWorks drawings by Xinzhan Bai

Before framing & Gluing

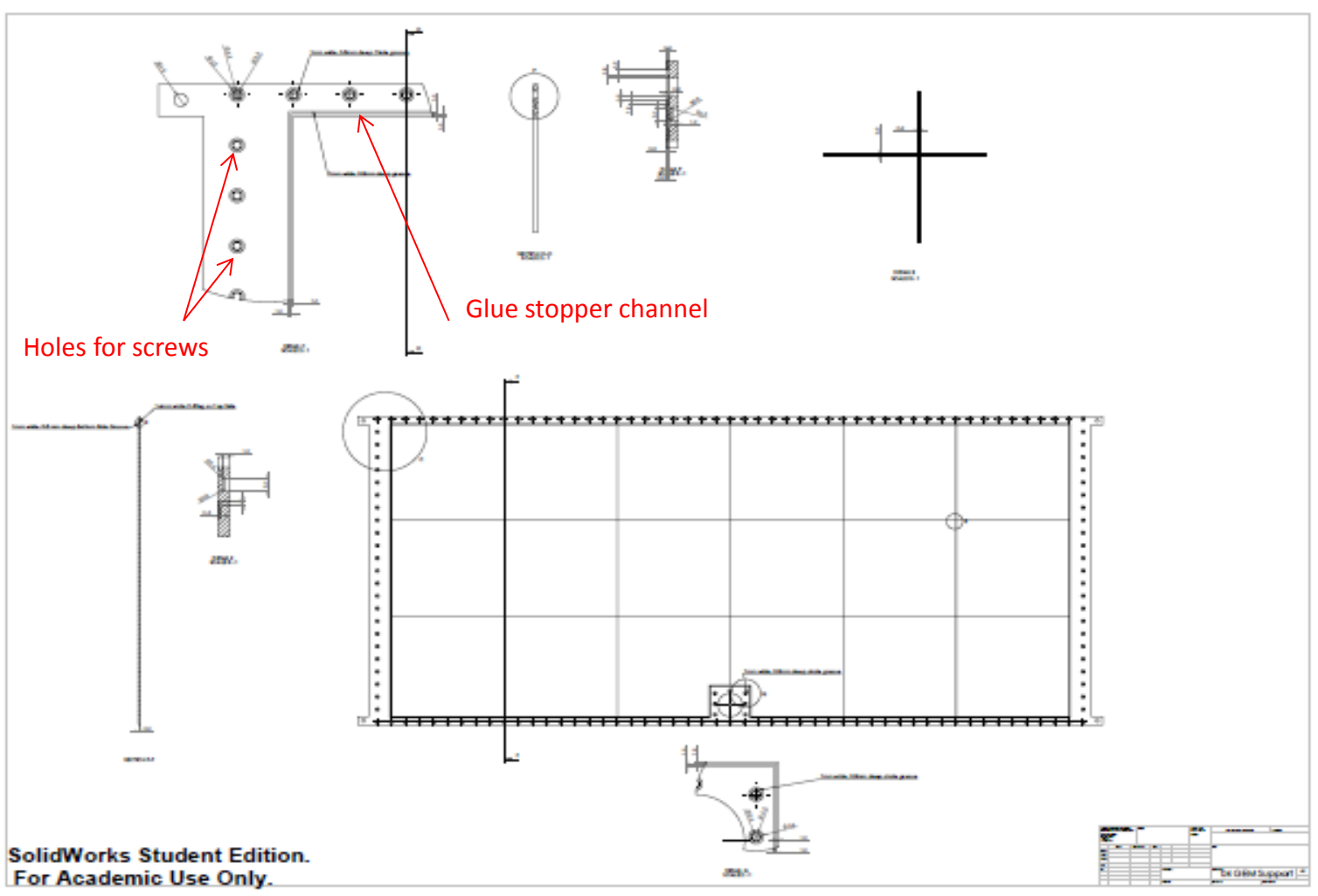
After framing & Gluing



Top side of the GEM support frame: Side with the O-ring



Bottom side of the GEM support frame: Side to glue the GEM



The drawings of the frames will be sent to RESARM (Belgium) for production as soon as we finalize the design GEMs and readout board at CERN

To Do List

- I am going to be at CERN on Monday, August 4th to finalize the drawings GEM foils and readout boards.
  - Completed by next week
- Production of the GEMs and readout strips board could start right away.
  - Set the target for 3 months
- The final drawing of the frames will be done here by Xinzhan also next week but after the GEMs and will be send to RESARM company (Belgium) for production
  - About 2 to 3 months