

Update on Cathode

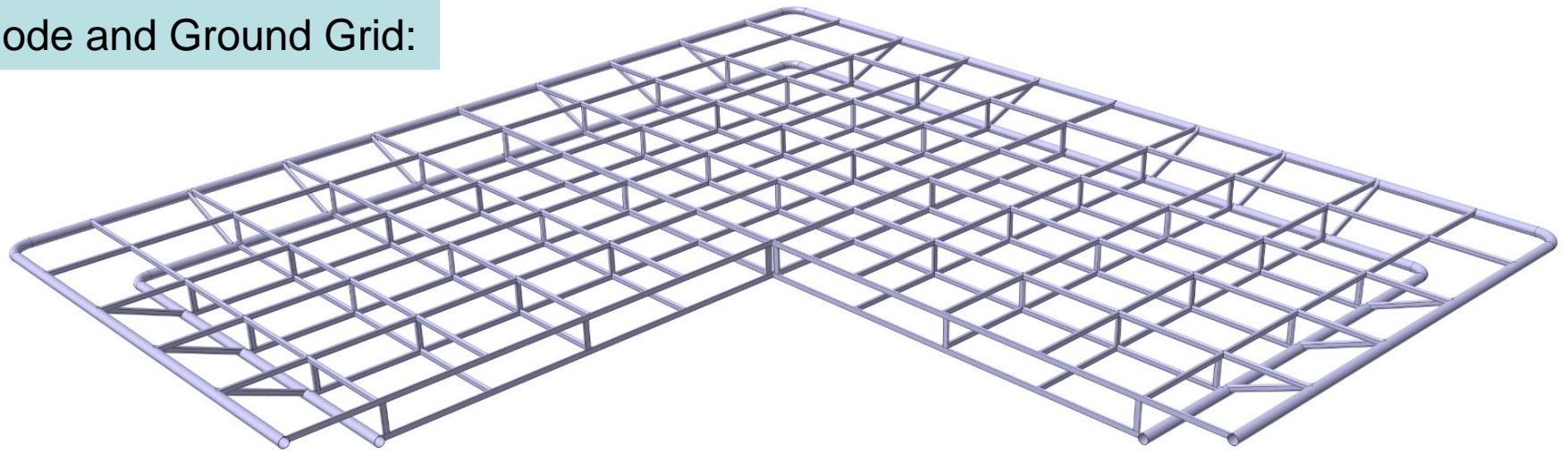
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ETH zürich

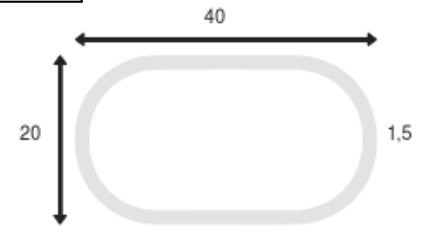
05.07.2017

- New Cathode and Ground Grid
 - Main Geometry is the same as before (Groundrid as well)
 - External round Pipe from 40mm to 60.3mm Dia
 - Central Rectangular Pipe «Oval» profile
 - Clash with main FRP 6inch I-Beam → **Problem solved by reducing the external perimeter.**
 - New Model for electrical simulation given to Laura M.B end of last week.
 - Laura is verifying the electrical simulations for cathode and groundgrid (There some issues by meshing in the 3D and we are trying to solve it)

Cathode and Ground Grid:

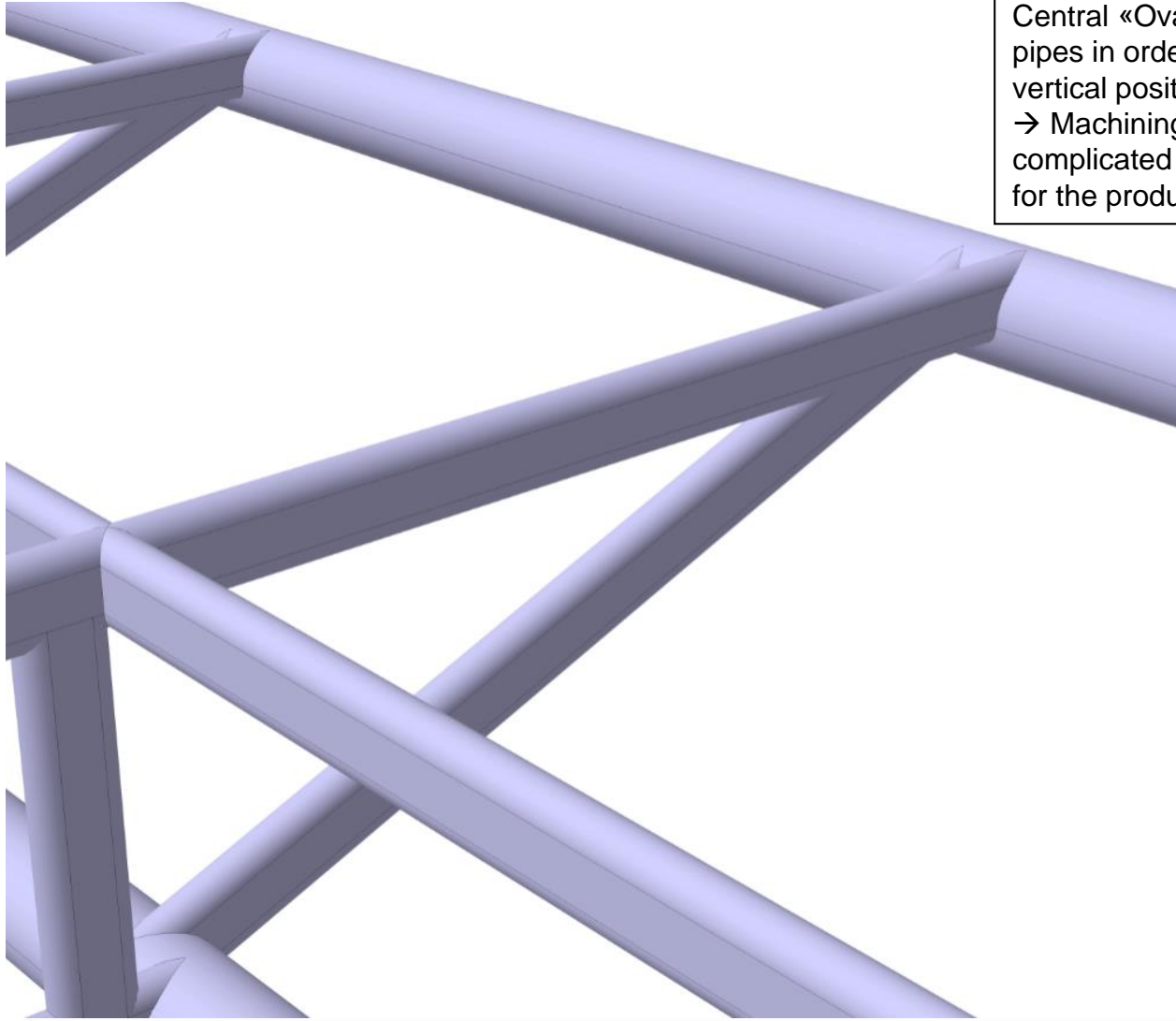


Central «Oval» pipe: 40x20x1.5mm

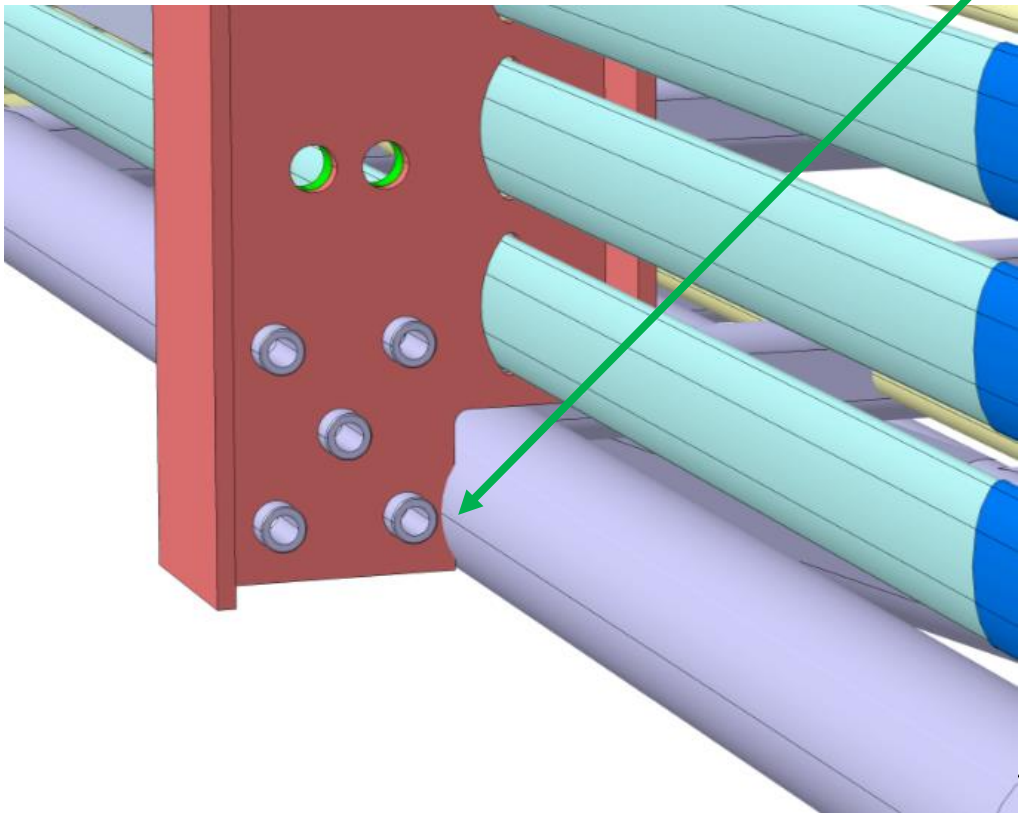
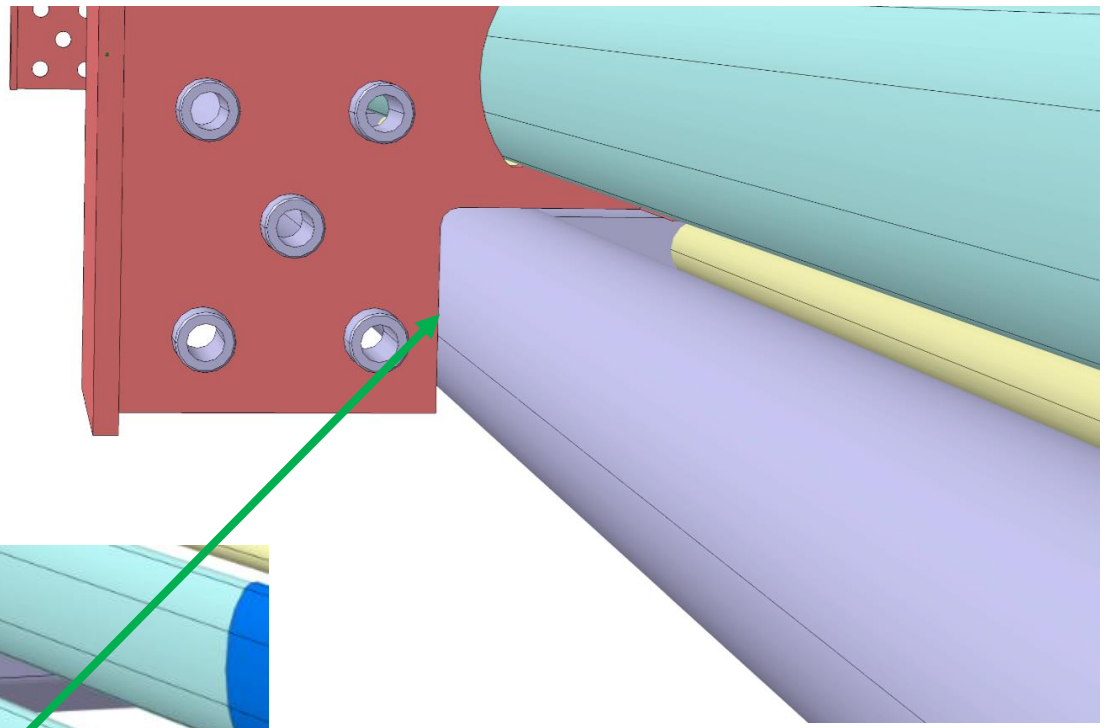


- Additional Oval Pipe 40x10x1.5:
- Under investigation from the company
 - Small qty
 - Alternative is to use plate 40x10

Dia External Round Pipe: 60.3mmx2mm



Central «Oval» pipe kept on the top of the Round pipes in order to keep the Cathode in the same vertical position as before.
→ Machining of the Pipes will be a bit more complicated and there will be more different parts for the production drawings.



Reduced by ~16mm (8mm per side)
→ Only modification will be at the holder.

- CATHODE

- New Cathode Holder needs to be re-designed (**holes in the 6 inch FRP I beam will not change**)
- Inserts for PCB voltage divider and for HV degrader also need to be redesigned
- New Stress Analysis needs to be performed (once design is finished we will get help from single phase engineer)
- Last 3D of the PCB board is needed (last one to the Cathode) in order to design the insert

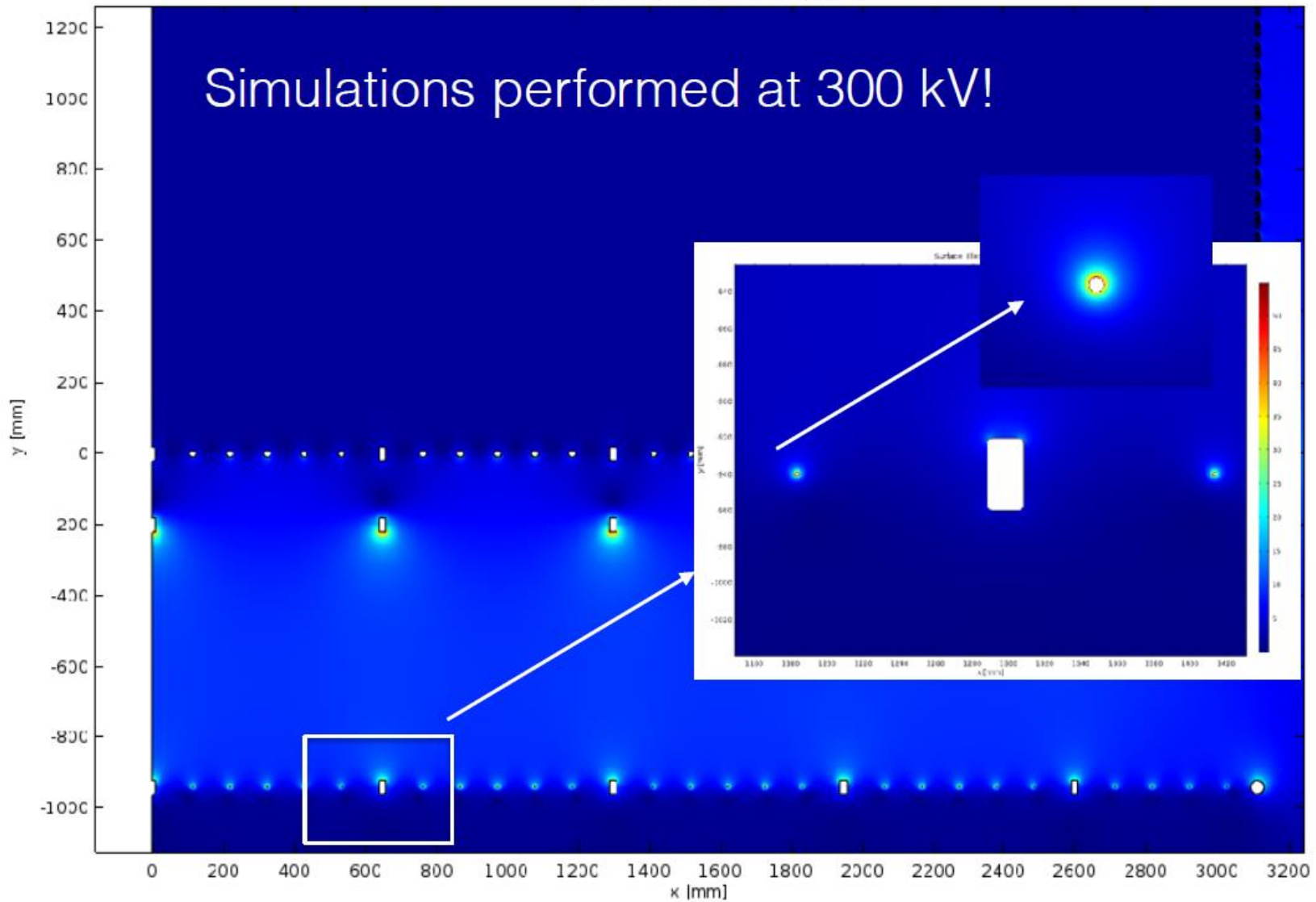
- GROUNDGRID

- Groundgrid Geometry exactly the same as the Cathode
- Finalize connection for the pillars → Position of pillars is the same
- Diameter of the Groundgrids pipes/wires grid will be increased for the 600 KV (actual 4mm) → Final dimension will be defined in the next days (with Laura M.B) → **6mm diameter should be fine**

Thank you

C-Ground grid

Surface Electric field norm (kV/cm)



C-Ground grid

