

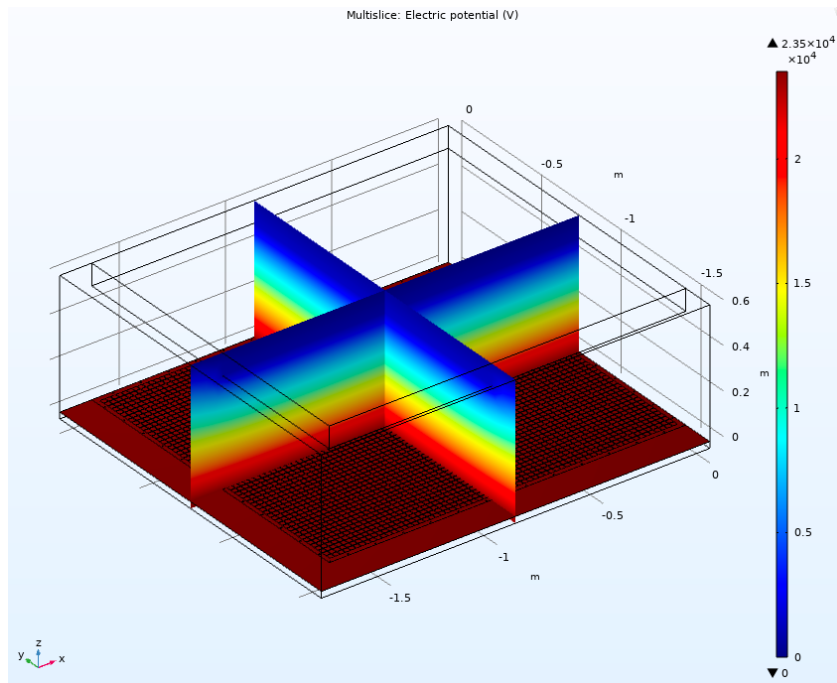
Spacer influence at cathode / FC interface

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HV consortium

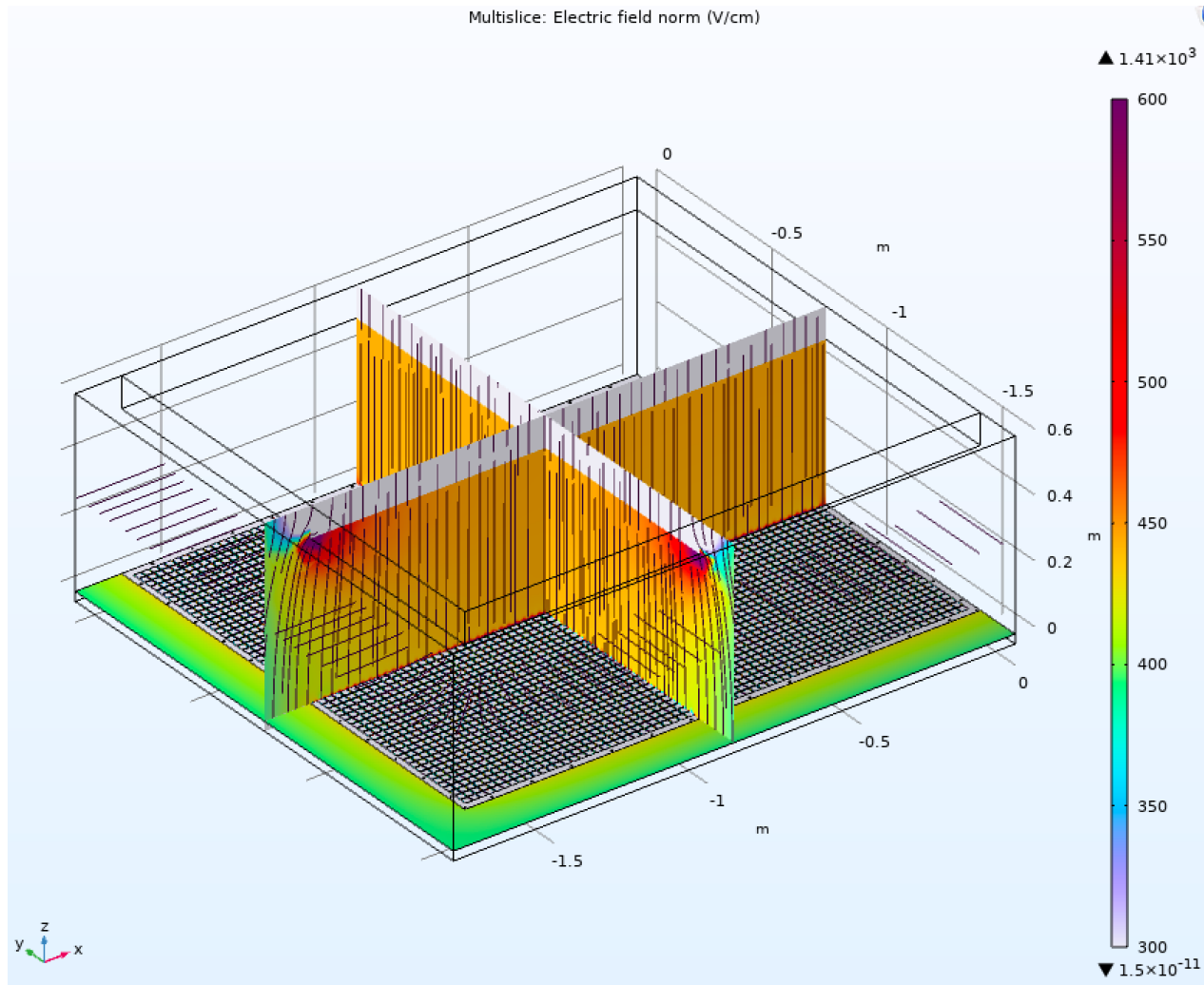
Feb. 22, 2023

COMSOL configuration

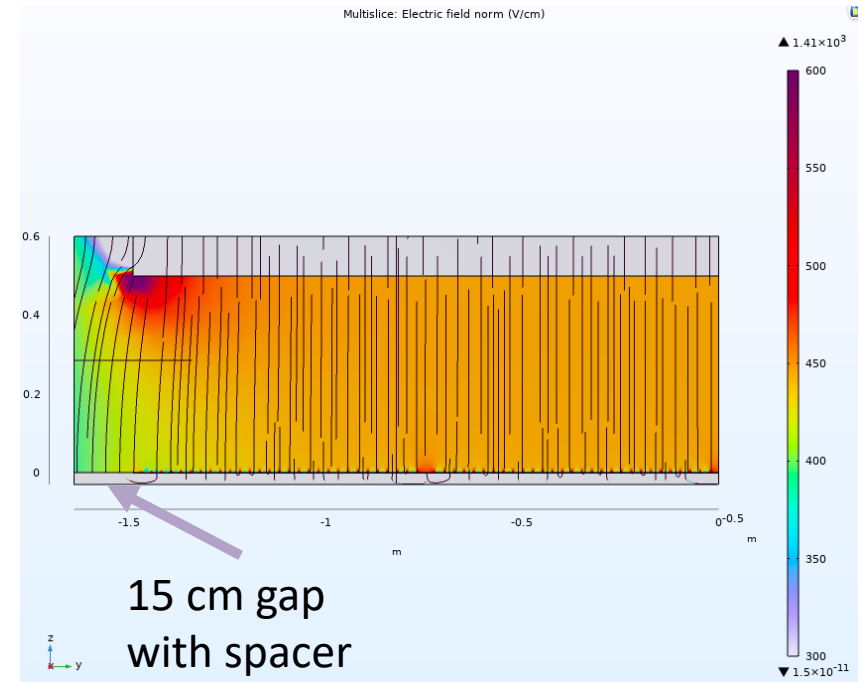
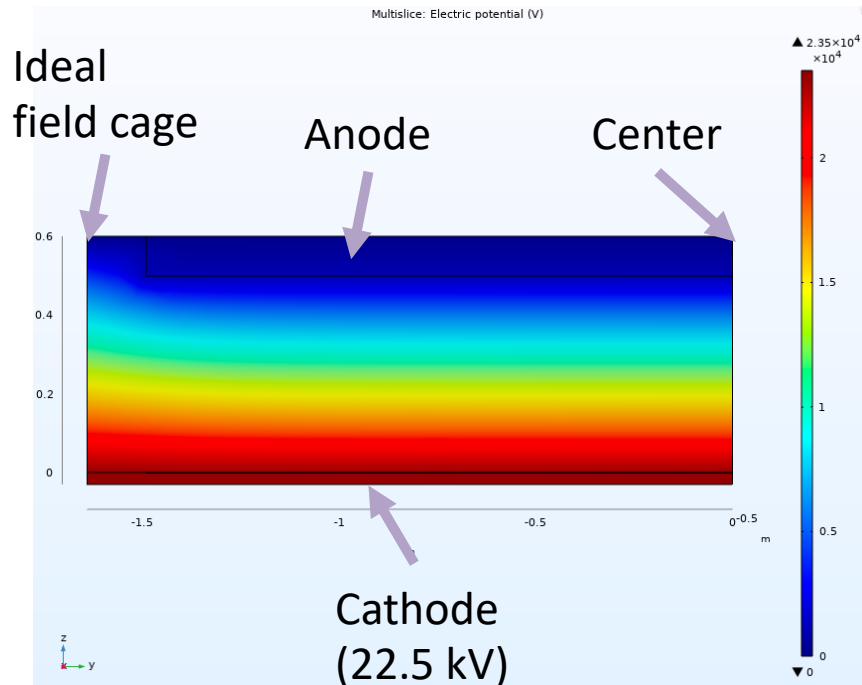


- Simulate 1/8th of Module-0 (using symmetries)
- Only 50 cm height (HV = 22500 V)
- Calculations with/without spacer between cathode and FC (15 cm gap)

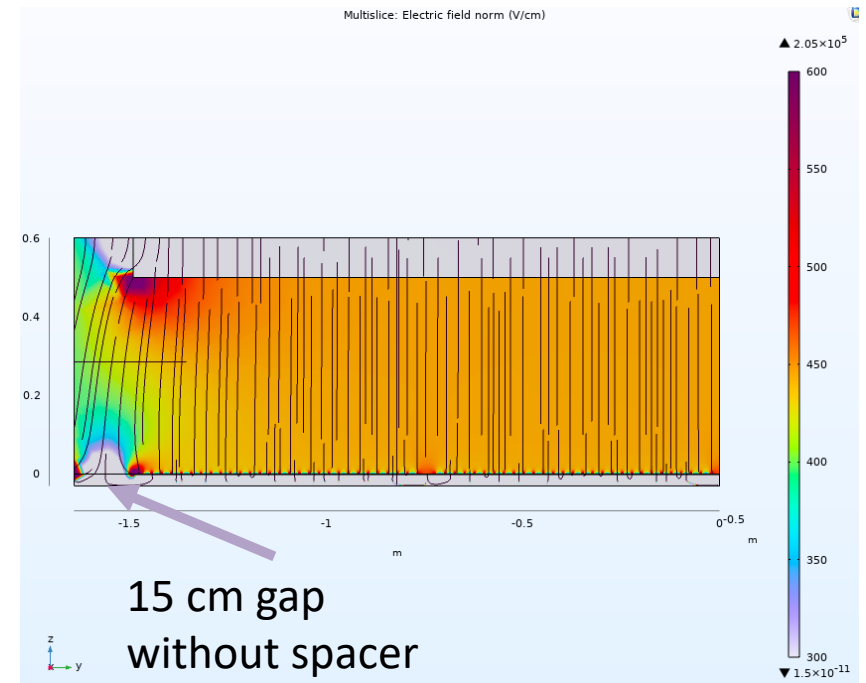
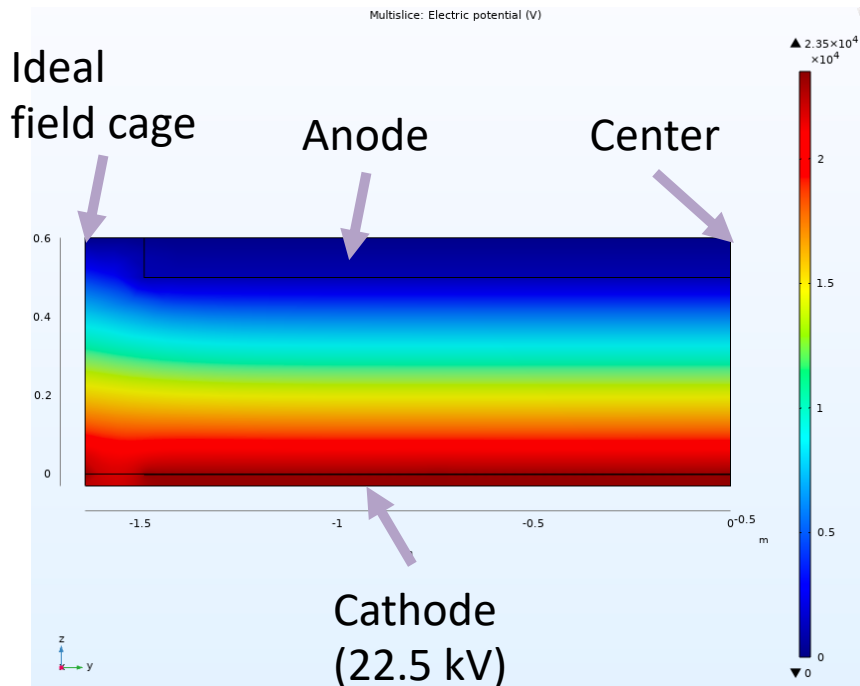
3D E-field rendering with spacer



Geometry with spacer



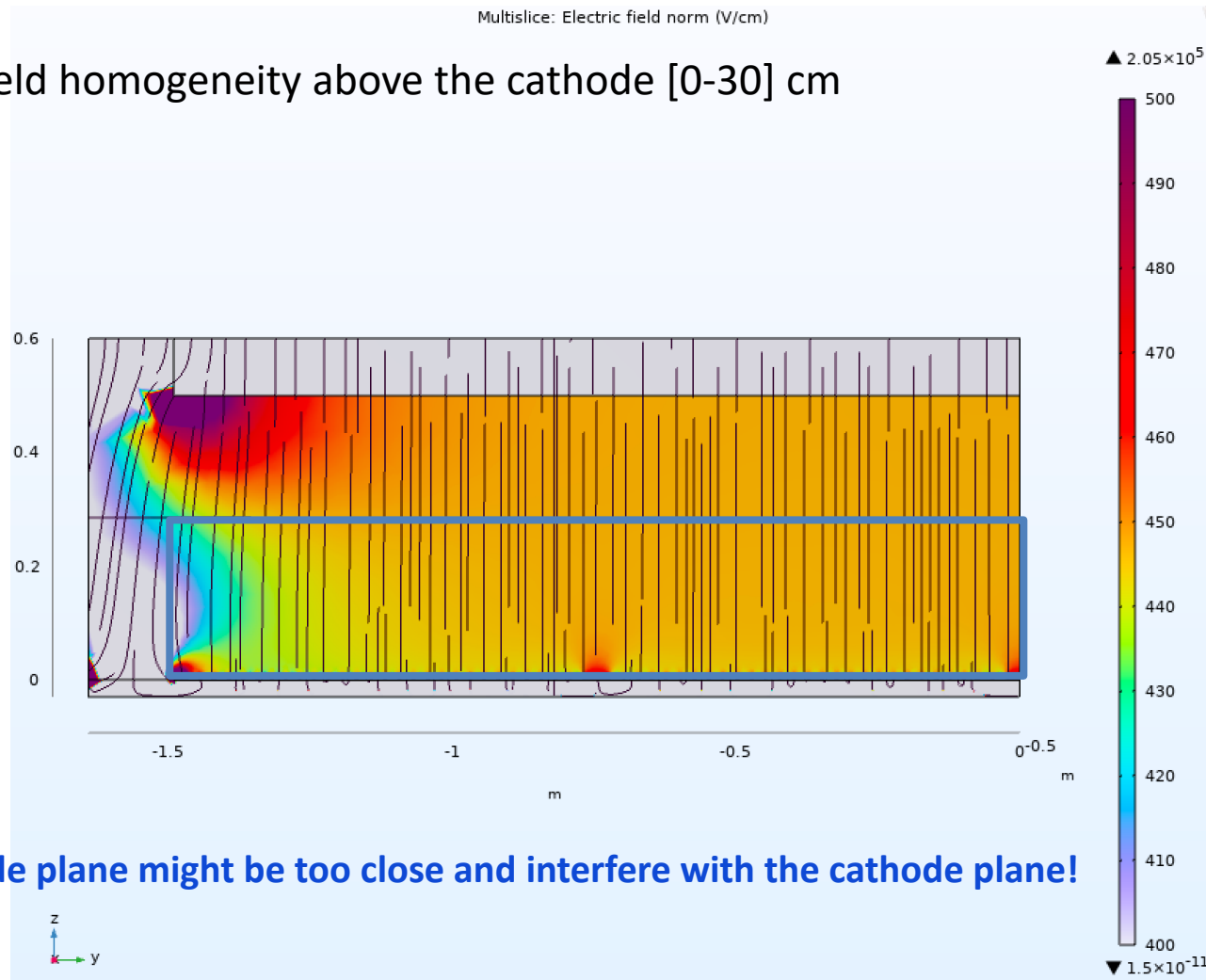
Geometry without spacer



Potential/electric field drop between cathode and field cage

Zoom of the E-field [400-500] V/cm

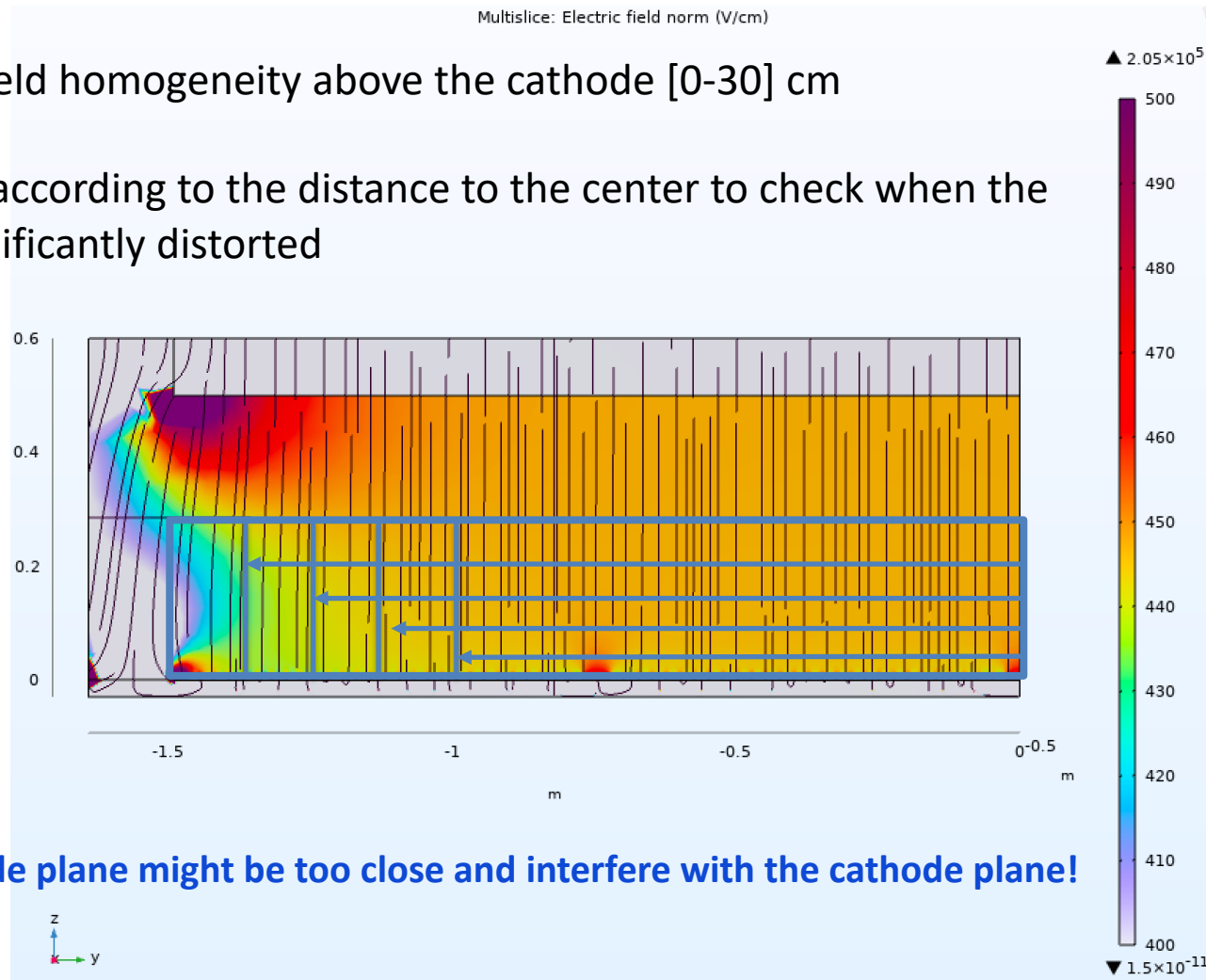
- Look at the field homogeneity above the cathode [0-30] cm



Anode plane might be too close and interfere with the cathode plane!

Zoom of the E-field [400-500] V/cm

- Look at the field homogeneity above the cathode [0-30] cm
- Split volume according to the distance to the center to check when the field gets significantly distorted



Anode plane might be too close and interfere with the cathode plane!