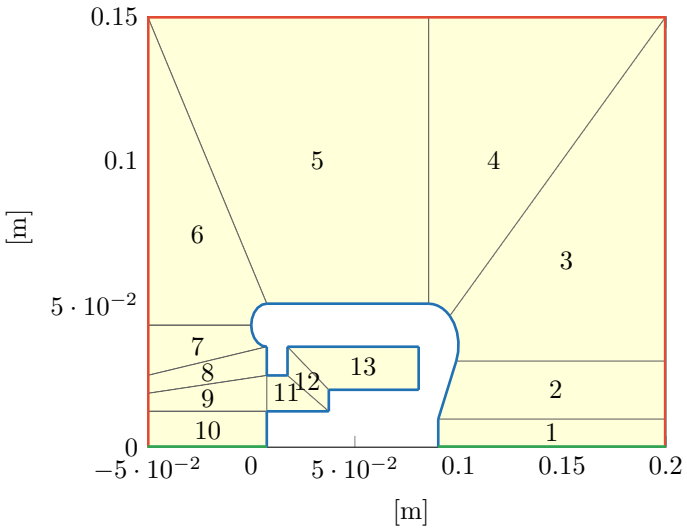
Photocathode

1 Full Geometry

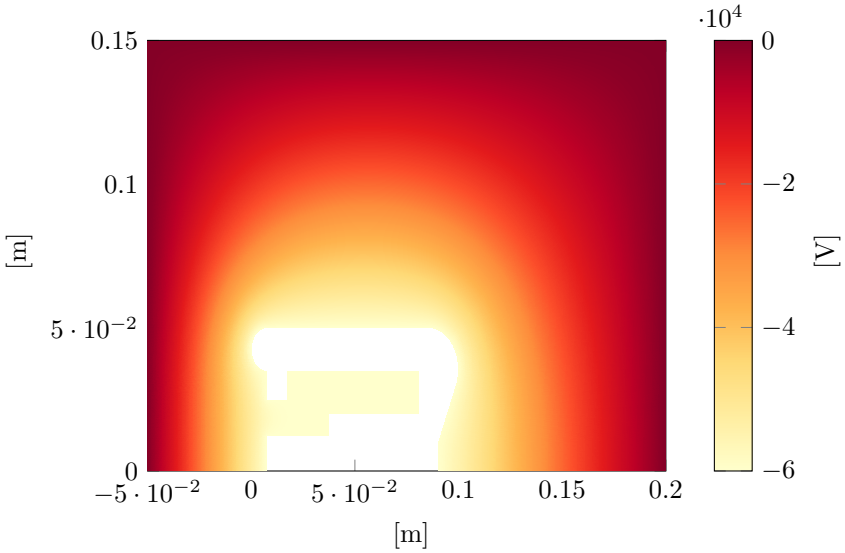
- geometry including the insulator

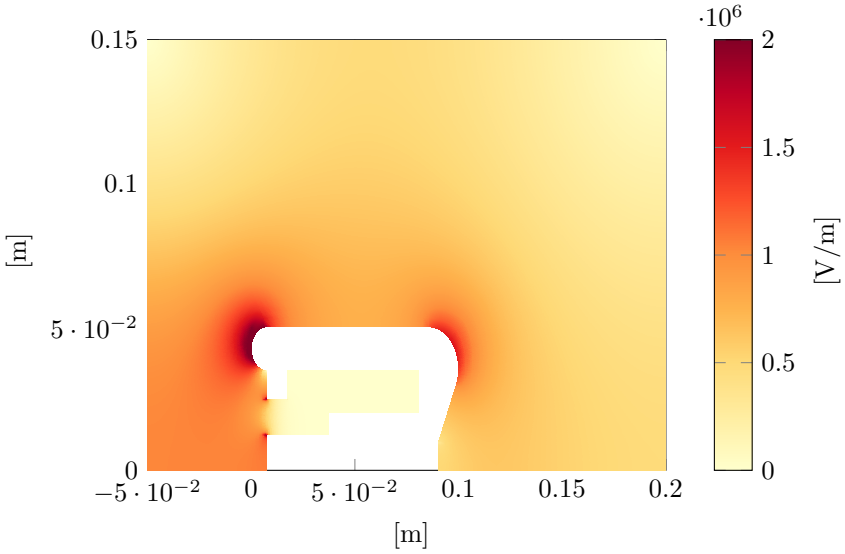


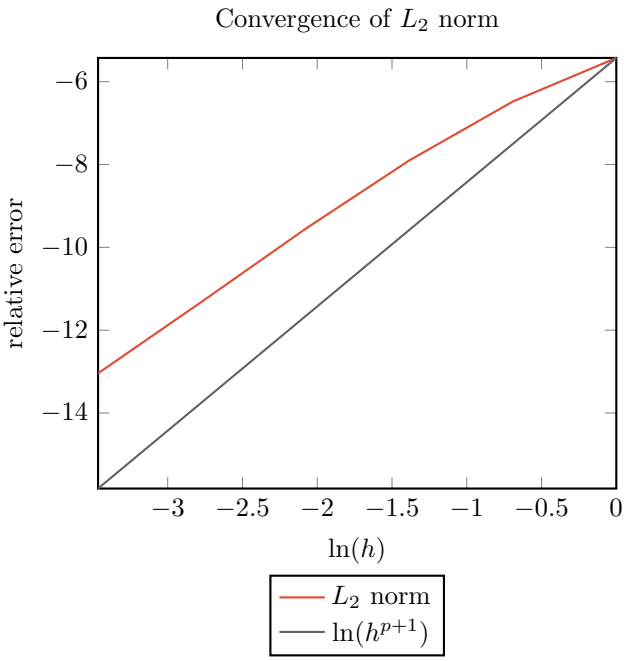
- electrostatic potential including the insulator with $p = 3$ $nsub = 32$

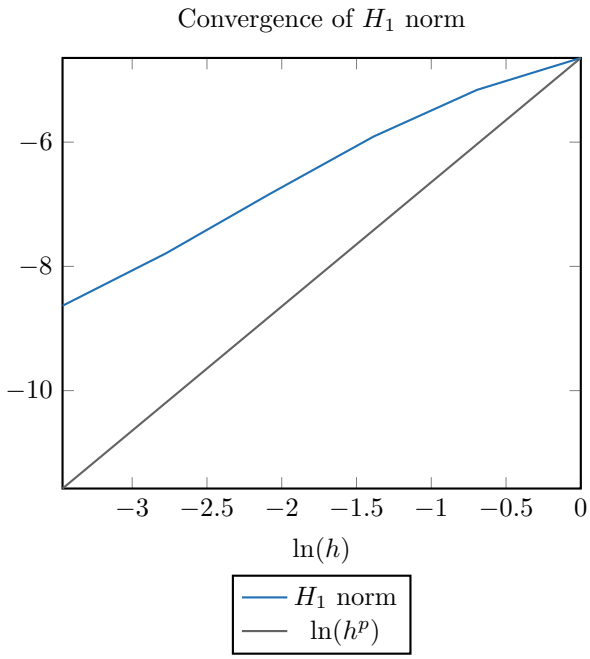
- magnitude of the electric field including the insulator with $p = 3$ $nsub = 32$

- convergence study of the electrostatic potential and electric field
- the reference uses $p = 3$ and $nsub = 64$
- the relative error uses the maximum potential/field value


·10^4
0
−2
−4
−6
[V]
0.15
0.1
5 · 10^−2
0
[m]
−5 · 10^−2
0
5 · 10^−2
0.1
0.15
0.2
[m]

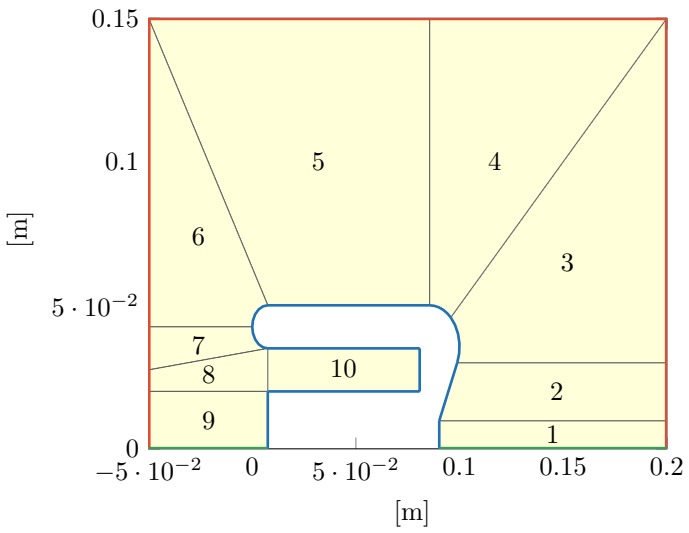

·10^6
2
1.5
1
0.5
0
[V/m]
0.15
0.1
5 · 10^−2
0
[m]
−5 · 10^−2
0
5 · 10^−2
0.1
0.15
0.2
[m]





2 Reduced Geometry

- useful for tracking since the back part has almost no influence on the field in the front
- is there a requirement for the photocathode to be planar?


0.15
0.1
$5 \cdot 10^{-2}$
0
[m]
5
4
6
3
7
8
10
2
9
1
$-5 \cdot 10^{-2}$
0
$5 \cdot 10^{-2}$
0.1
0.15
0.2
[m]