WARP Simulation

(status report)

A MonteCarlo program for light simulation in WARP

A.G.Cocco and R.Santorelli WARP-TM/2003-01

A study of the electric field in WARP 2.3 liter prototype

A.G.Cocco R.Santorelli A.Szelc WARP-TM/2004-01

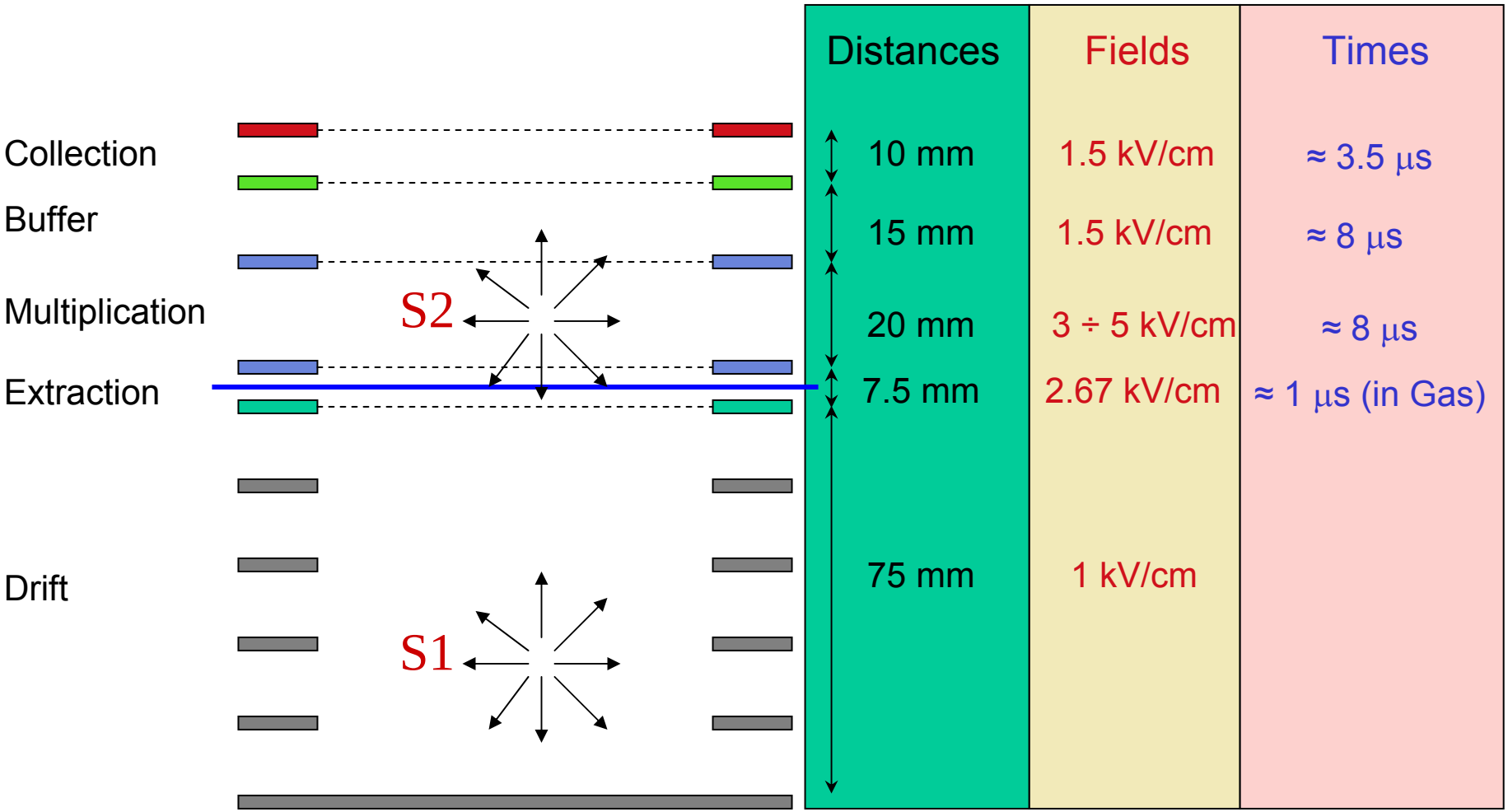
Geant 3.21 simulation of the WARP 2.3 liter prototype

A.G.Cocco R.Santorelli

Simulation of the electron transport and scintillation light production in gas Argon

A.G.Cocco A.Szelc

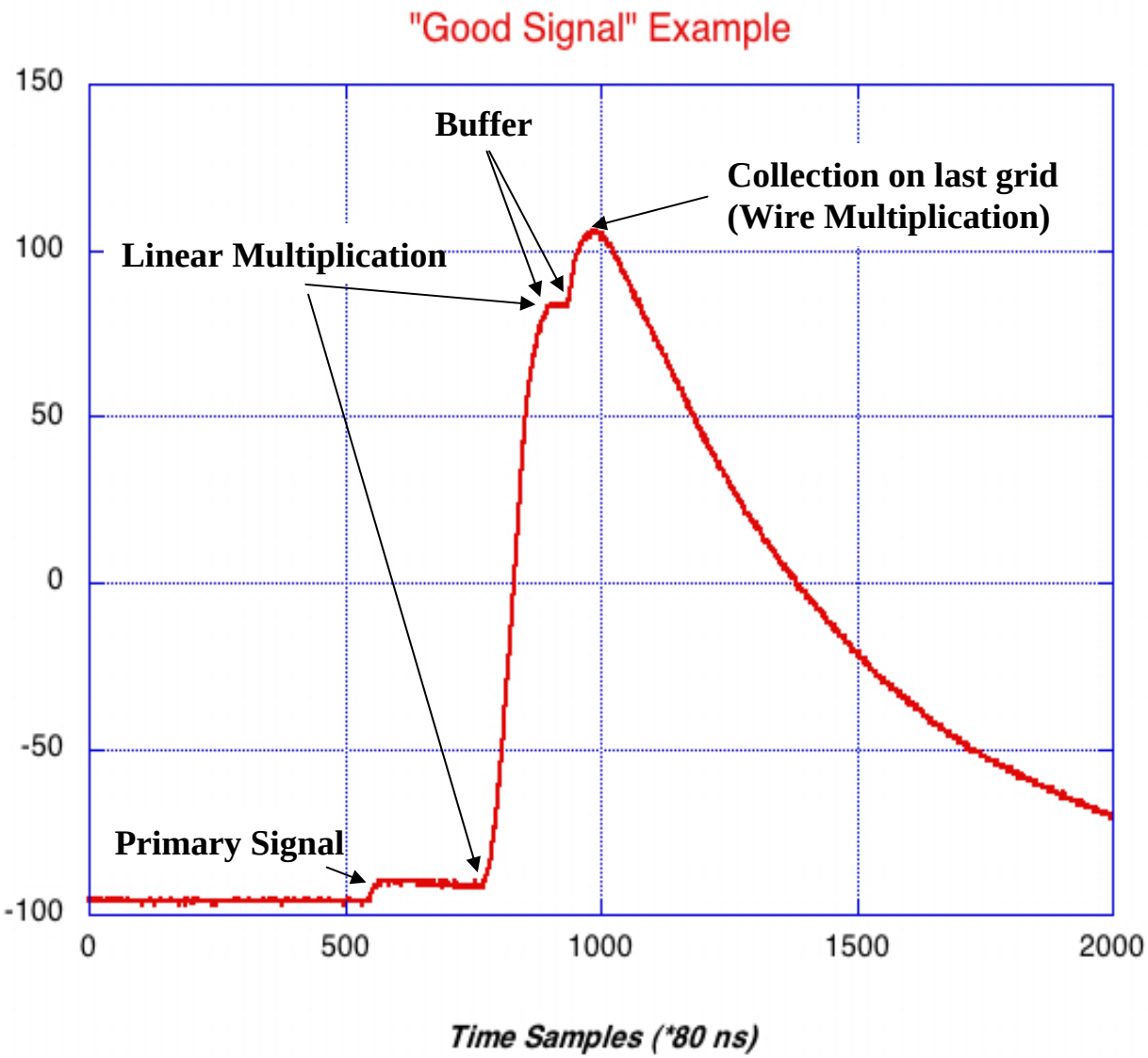
New grids scheme



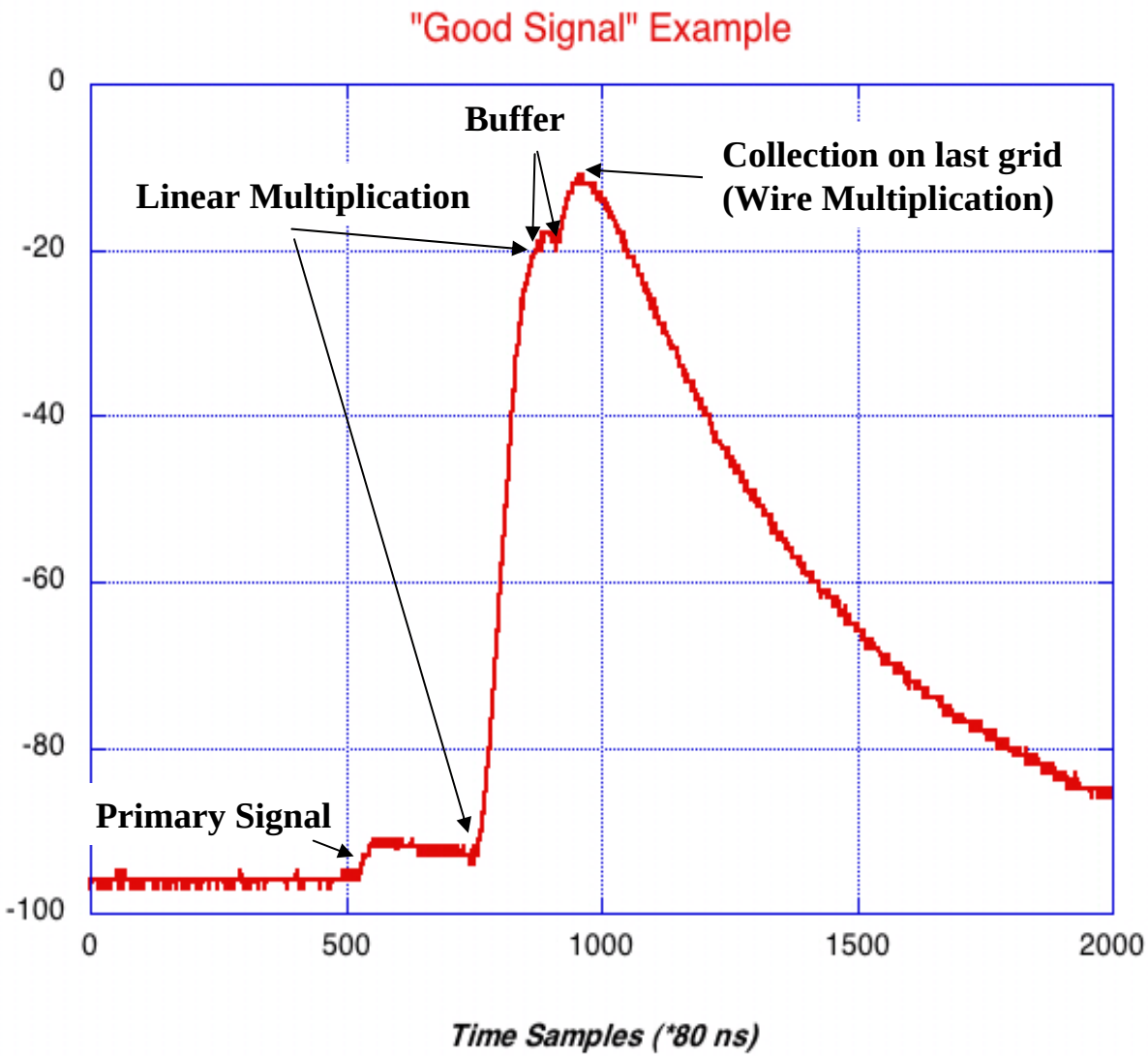
Max ΔV across the grids ≈ 17 kV

Expected S2/S1 in the linear multiplication region ≈ 20

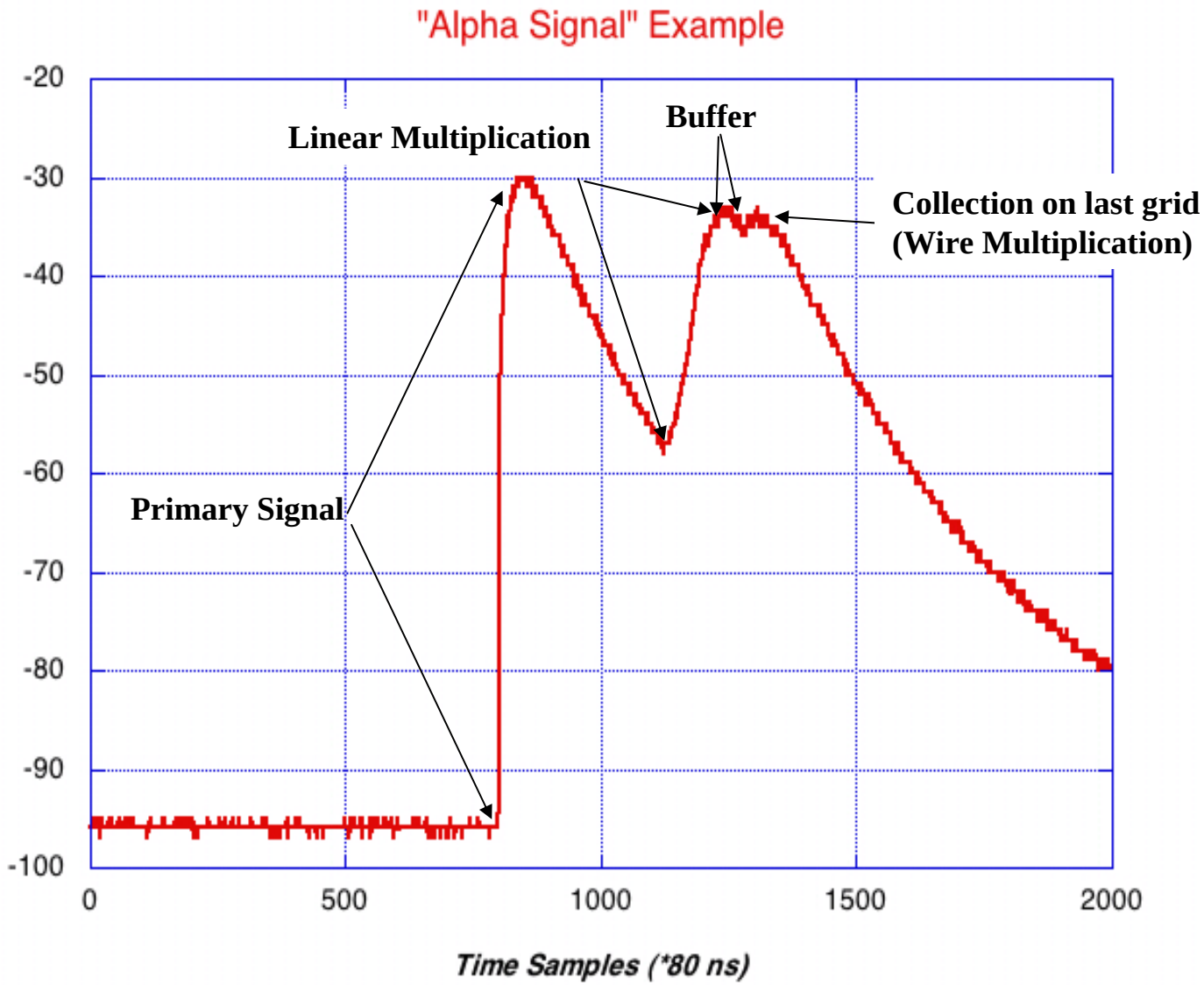
Signals with the new grids scheme



Signals with the new grids scheme

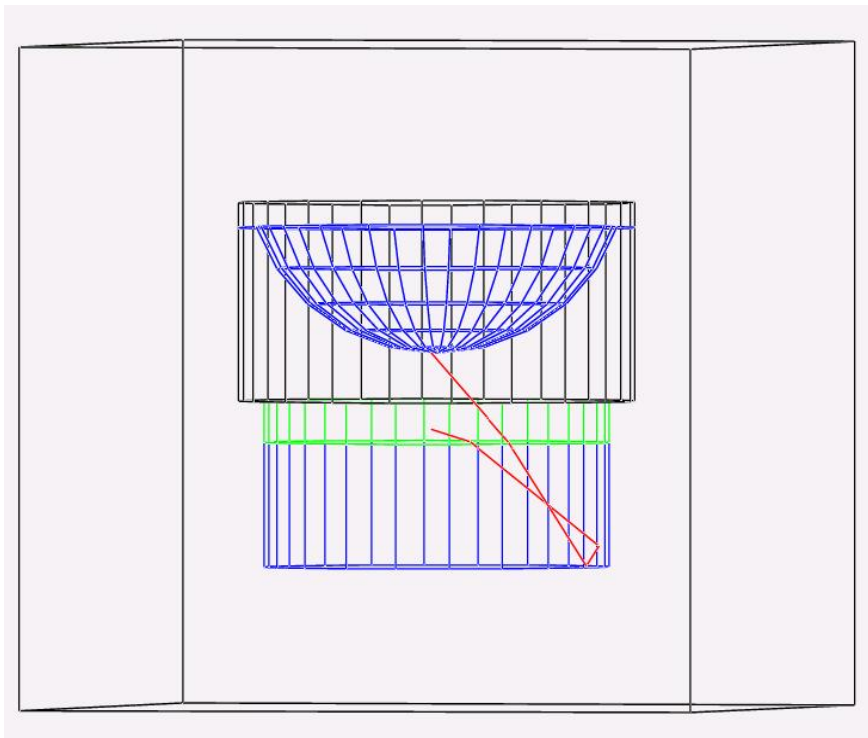


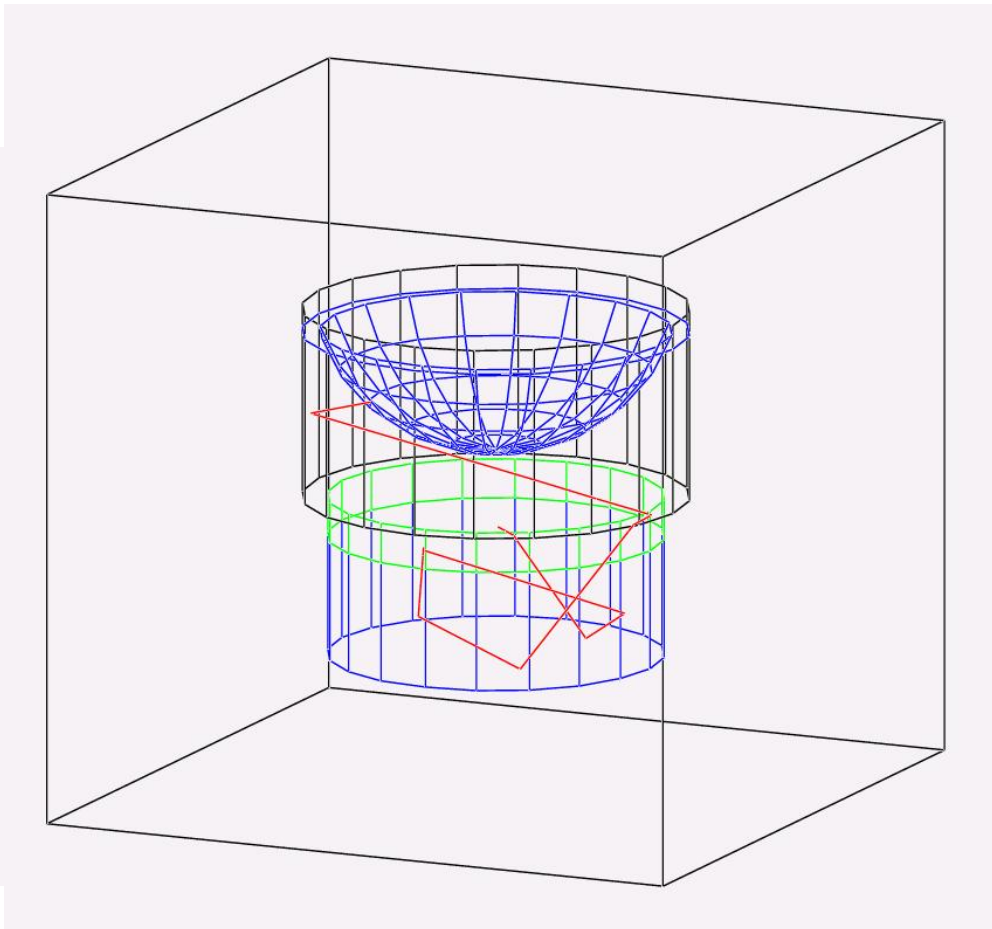
Signals with the new grids scheme

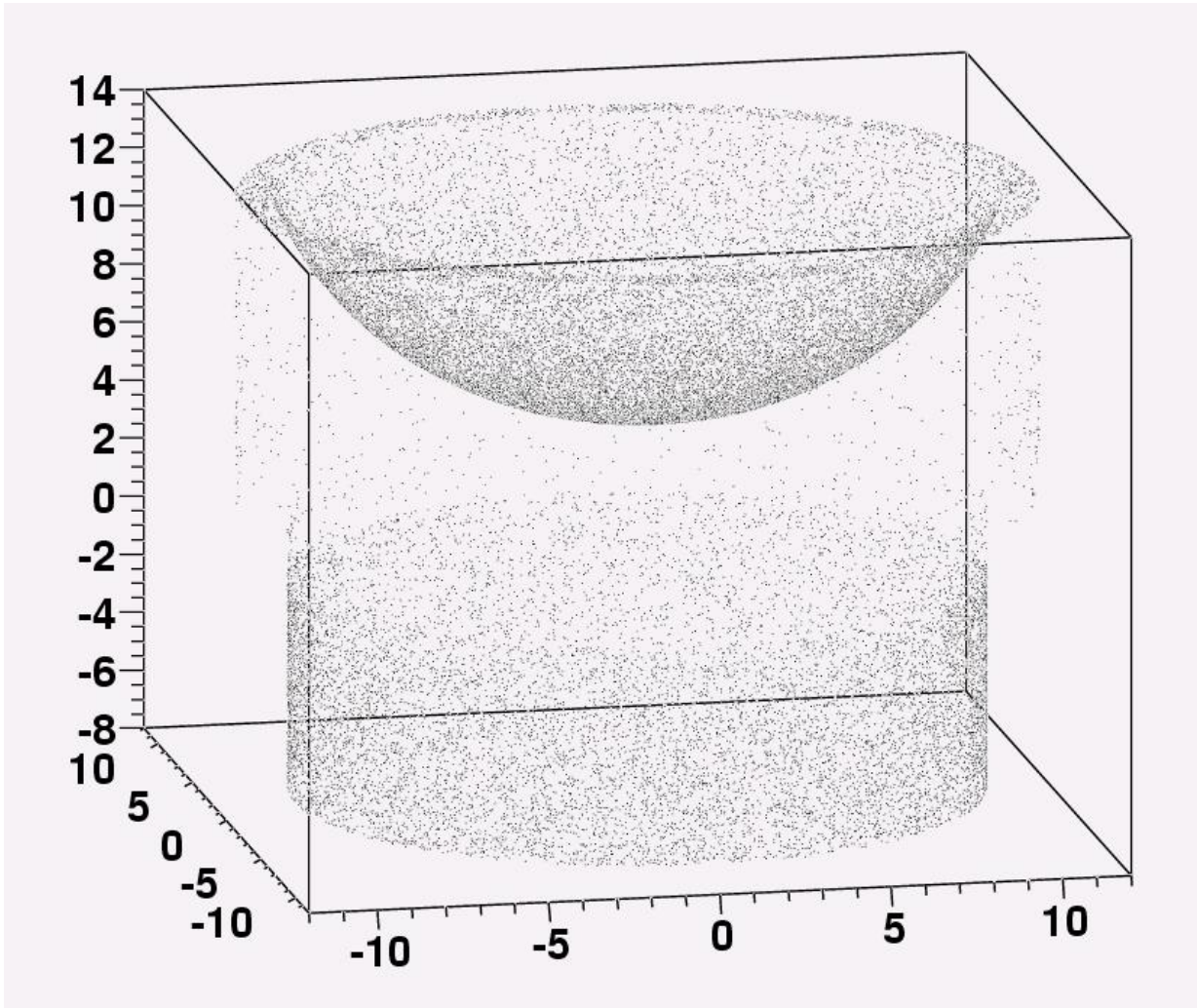


MonteCarlo program for light simulation in WARP

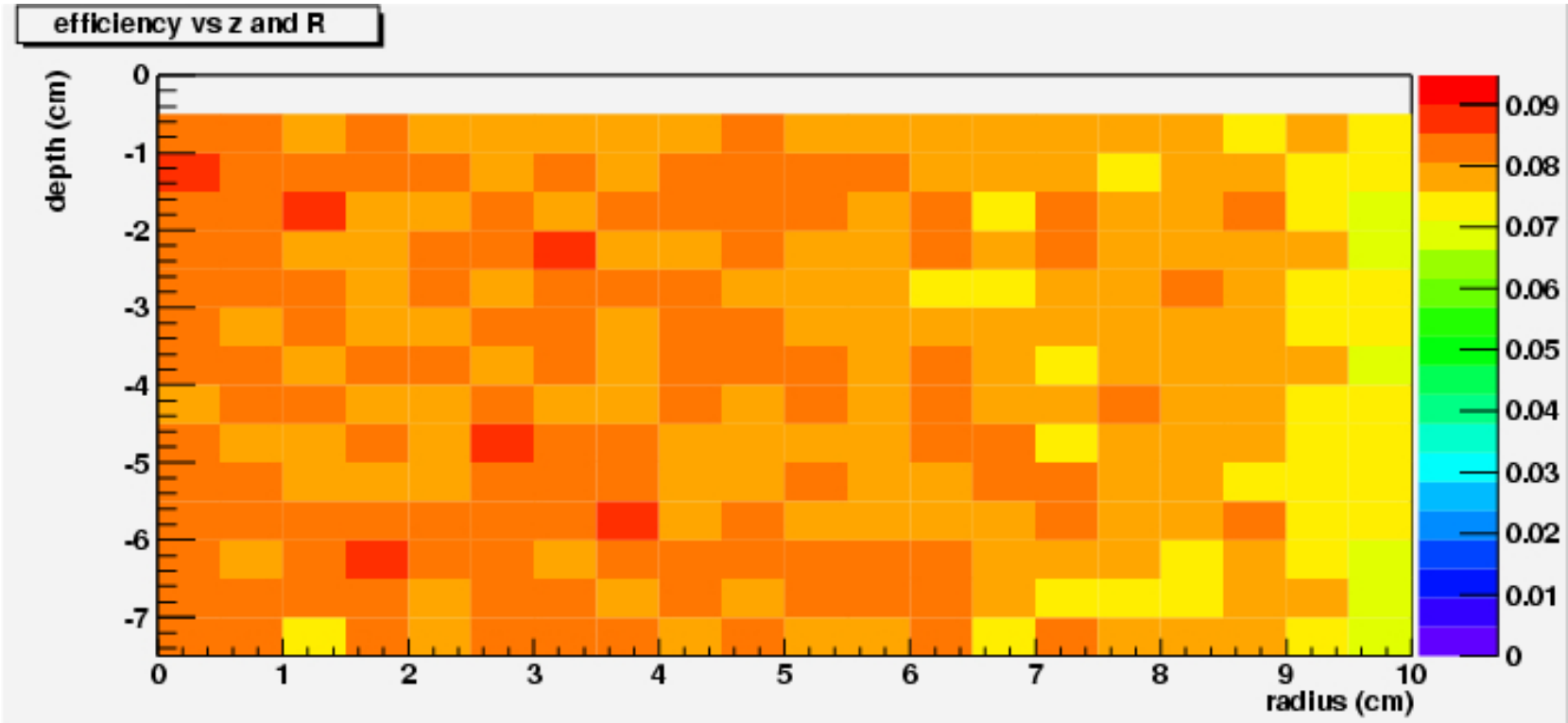
Raytracing






14
12
10
8
6
4
2
0
-2
-4
-6
-8
10
5
0
-5
-10
-10
-5
0
5
10

S1 efficiency vs R and Z

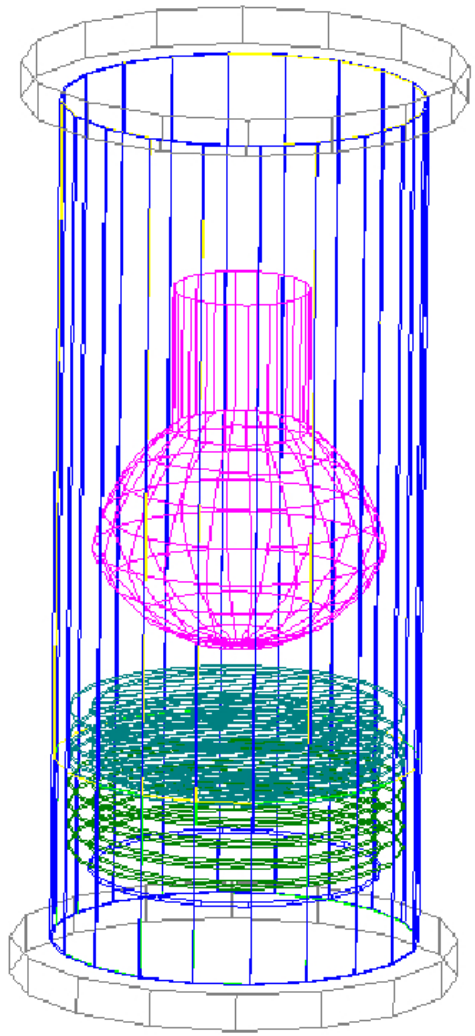


Study of the electric field in WARP 2.3 liter prototype

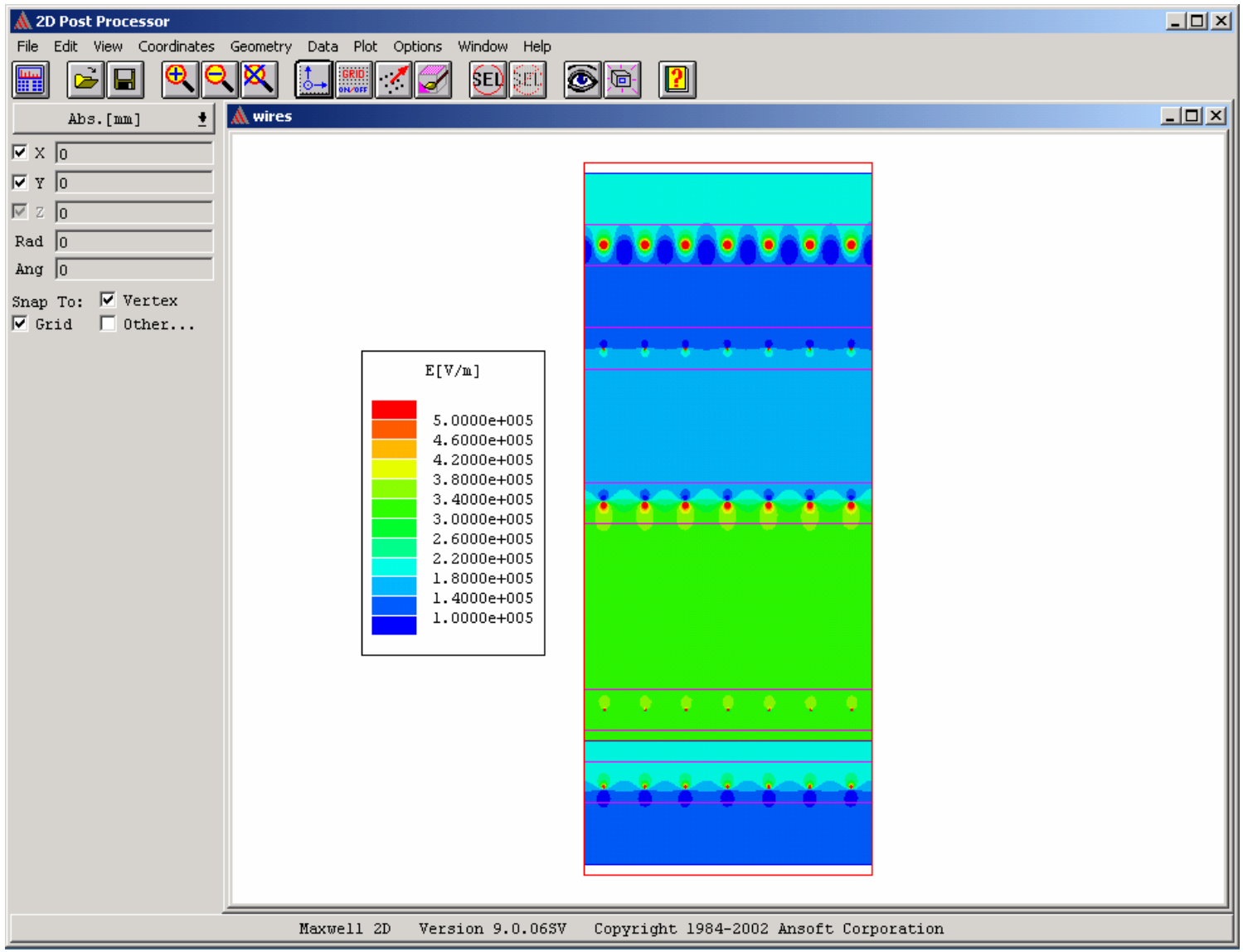
Maxwell 3D

(Ansoft Co.)

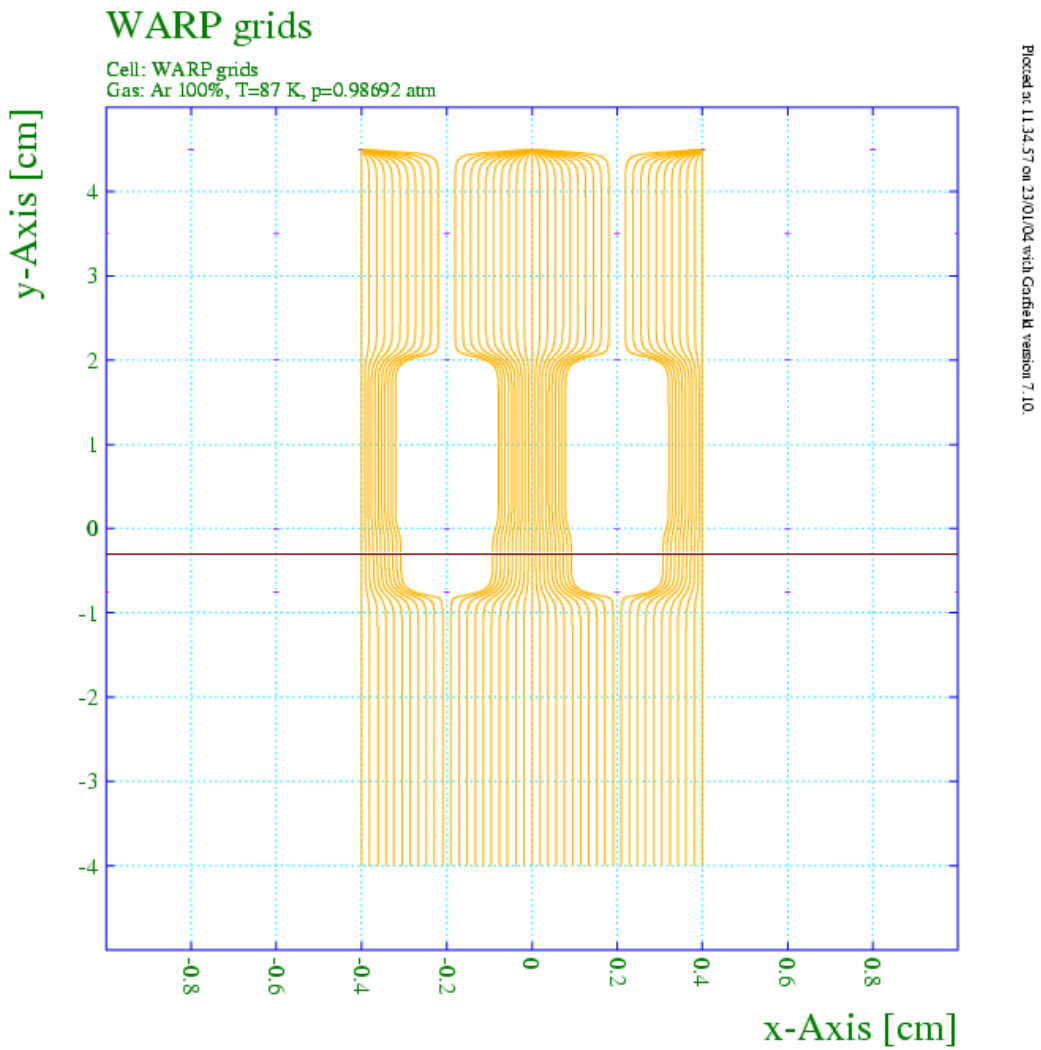
Full 3D simulation of the 2.3 liter setup



Maxwell 3D post-processor

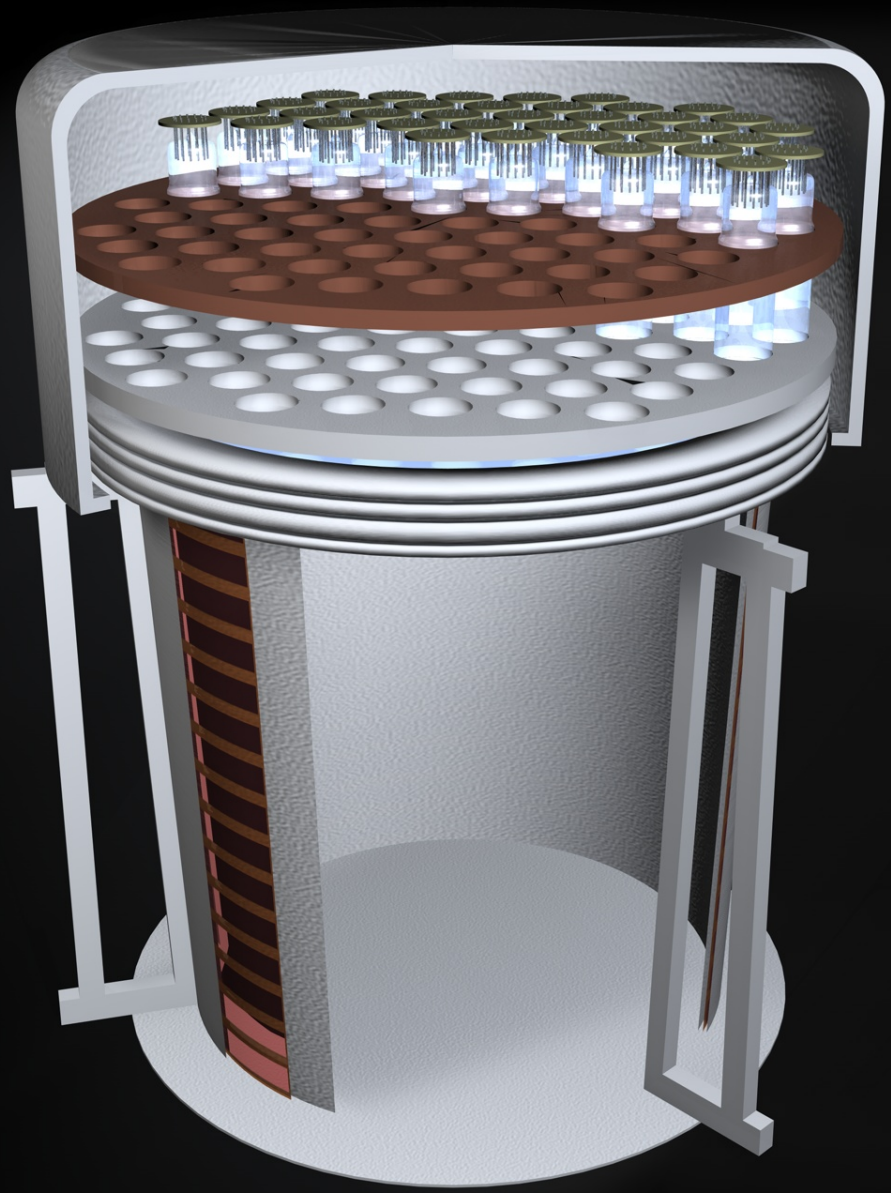


Garfield electron drift lines



WARP 100 liter prototype

WARP 100 liter prototype



WARP 100 liter setup

Next steps

- 2.3 liter
  - implement the 7 2” PMT (new setup)
  - evaluation of the efficiencies on S1 and S2

- 100 liter
  - setup optimization (number of PMTs)
  - light collection efficiency
  - study of position resolution

- Complete the study and the simulation on the production of scintillation light in gas Argon