

# Phase II Optical Simulations

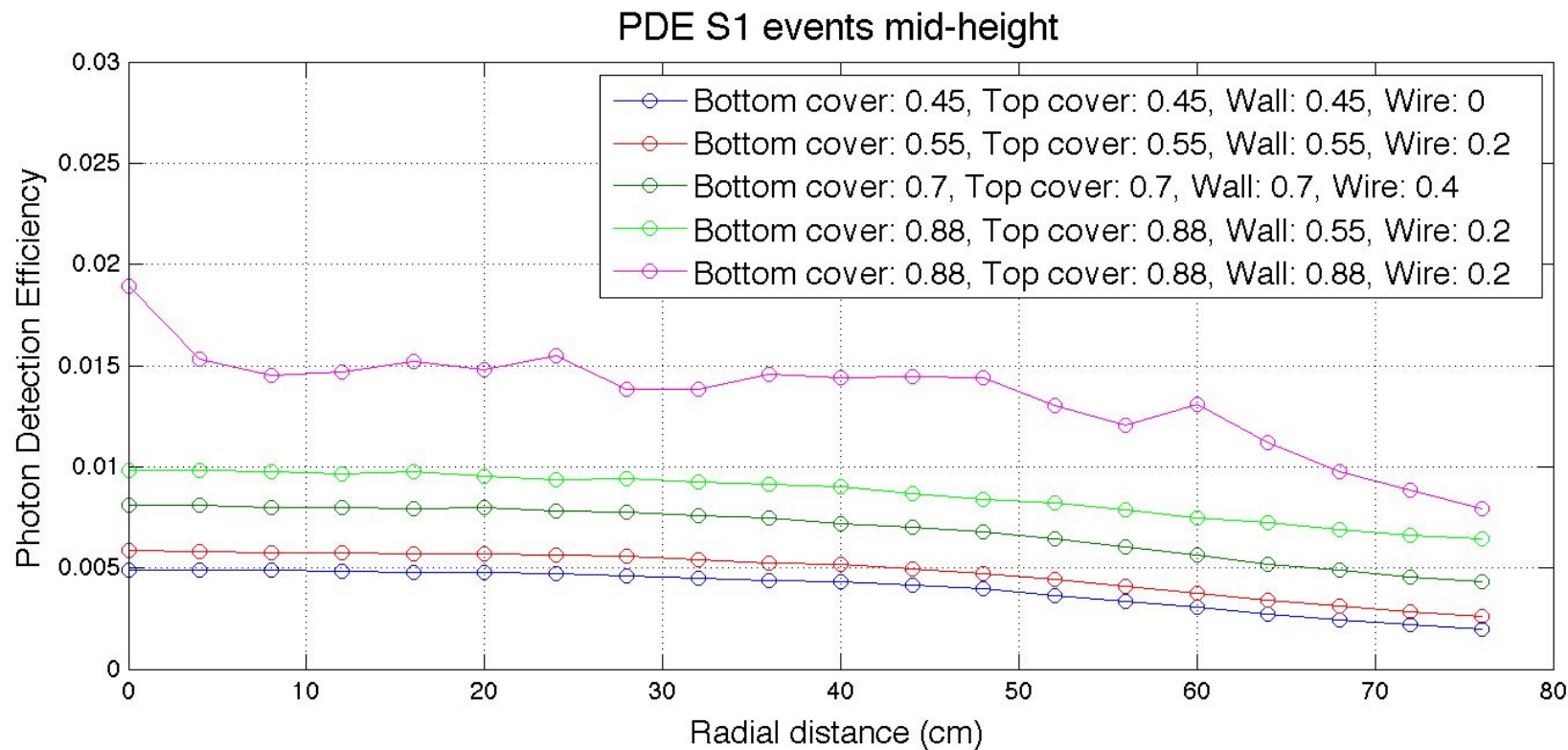
30 May 2017

# Model of Phase II with 2 layers

- Grid between layers 1 and 2
- Using Ryan's StepInLayer file to correct for reflection angle
- Phase II vessel has ID = 1.667 m
  - Place wall at 1.600 m (minimum reflector distance for a mirror wall with 6.44 cm gap between cathode ring and wall)

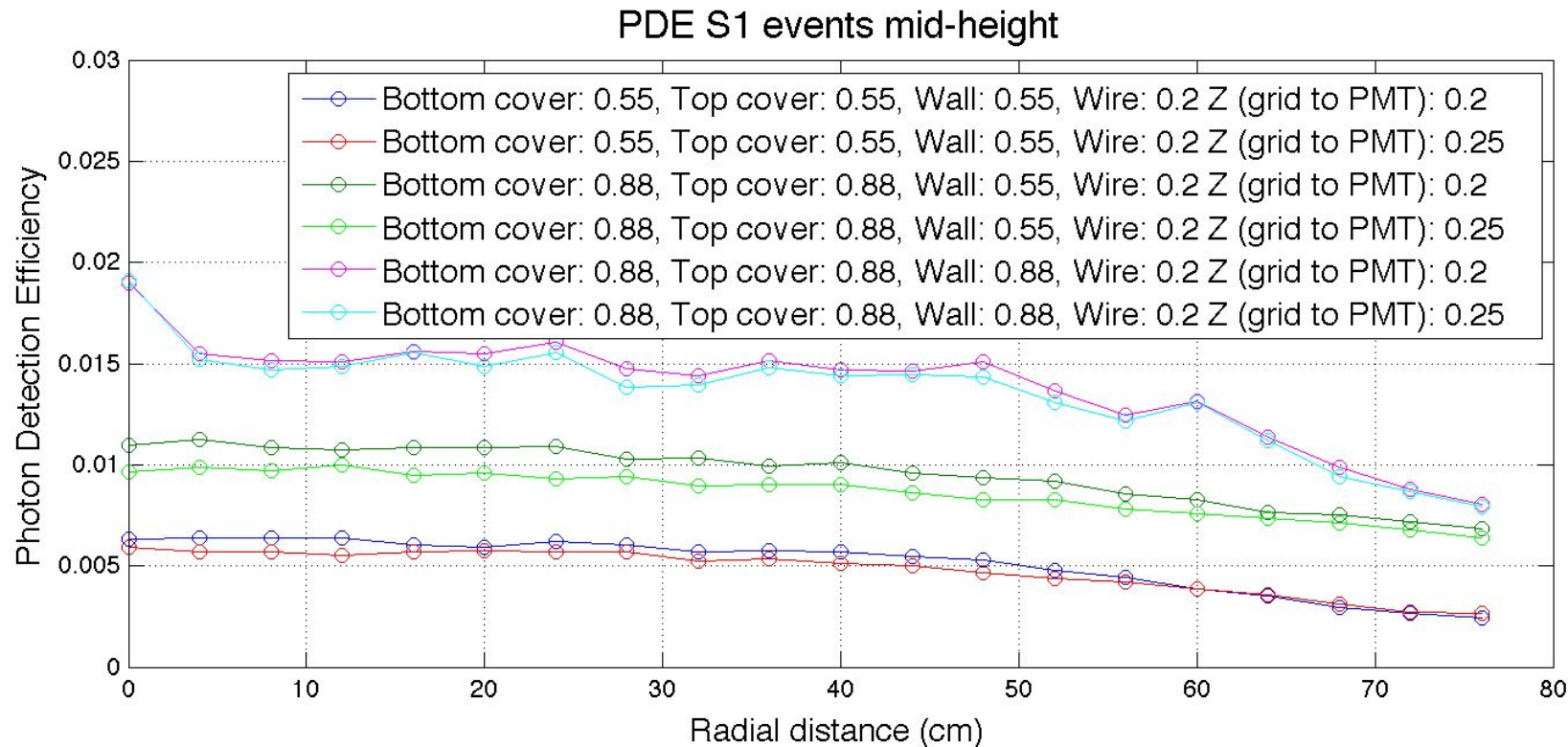
Layer	Name	Wall material	Radius [m]
2	Grid to PMTs	PTFE or AlMgF2	1.600 / 2
1	Bottom plate to grid	PTFE or AlMgF2	1.600 / 2

# Model of Phase II with 2 layers: Radial sweep



2,000,000 photons

# Model of Phase II with 2 layers: Radial and Z sweep

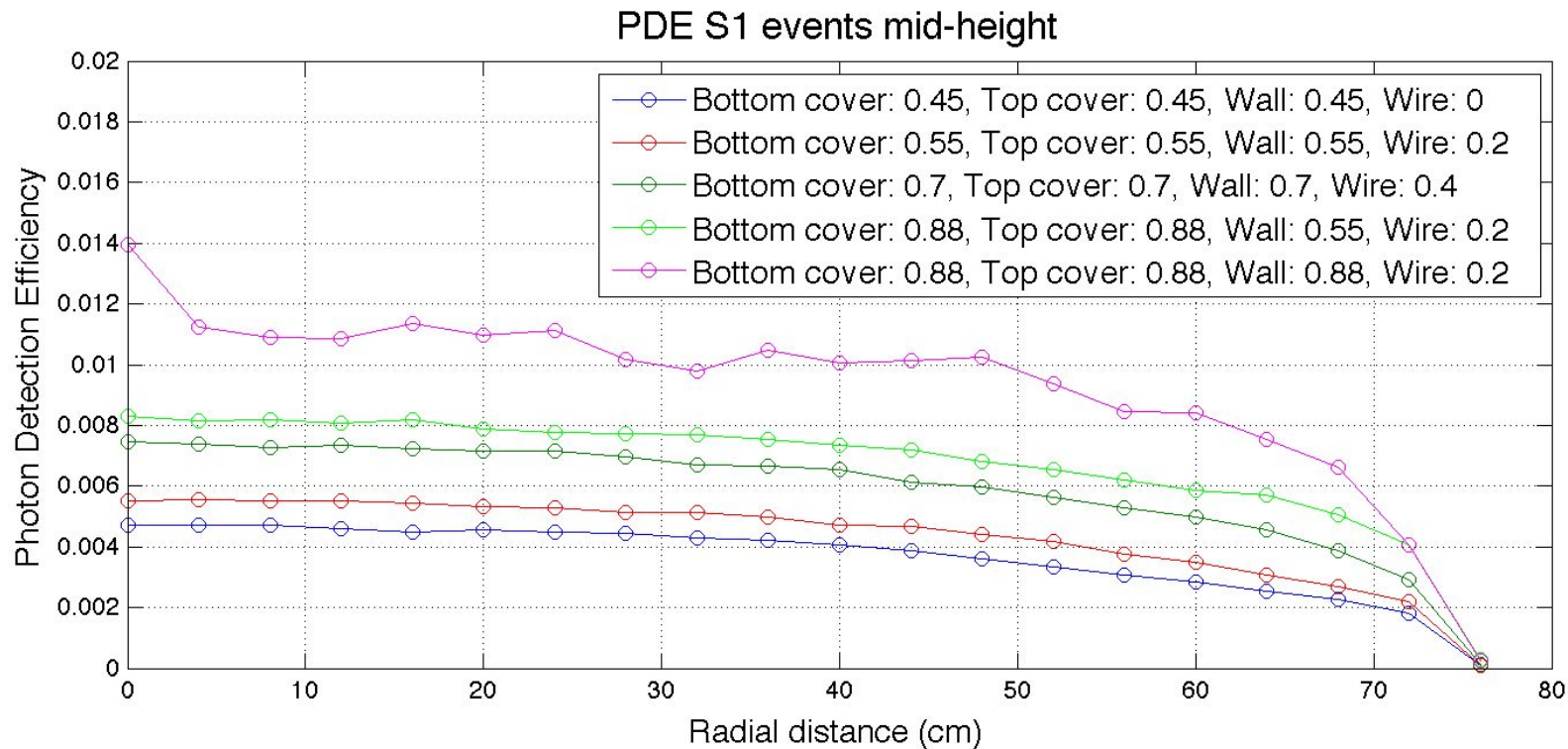


# Model of Phase II with 4 layers

- Accounts for light loss from SS grid ring
  - Uses overhangs to consider light loss from gaps between reflective wall at large radius and grid ring at smaller radius
- Grid between layers 2 and 3
- Radii of layers based on Phase II chamber and cathode ring dimensions
- Using Ryan's StepInLayer file to correct for reflection angle

Layer	Name	Wall material	Radius [m]
4	Grid ring to PMTs	PTFE or AlMgF2	1.600 / 2
3	Grid plane to top of grid ring	SS	1.449 / 2
2	Bottom of grid ring to grid plane	SS	1.449 / 2
1	Bottom plate to grid ring	PTFE or AlMgF2	1.600 / 2

# Model of Phase II with 4 layers: Radial sweeps



200,000 photons

# Model of Phase II with 4 layers: Radial and Z sweep

