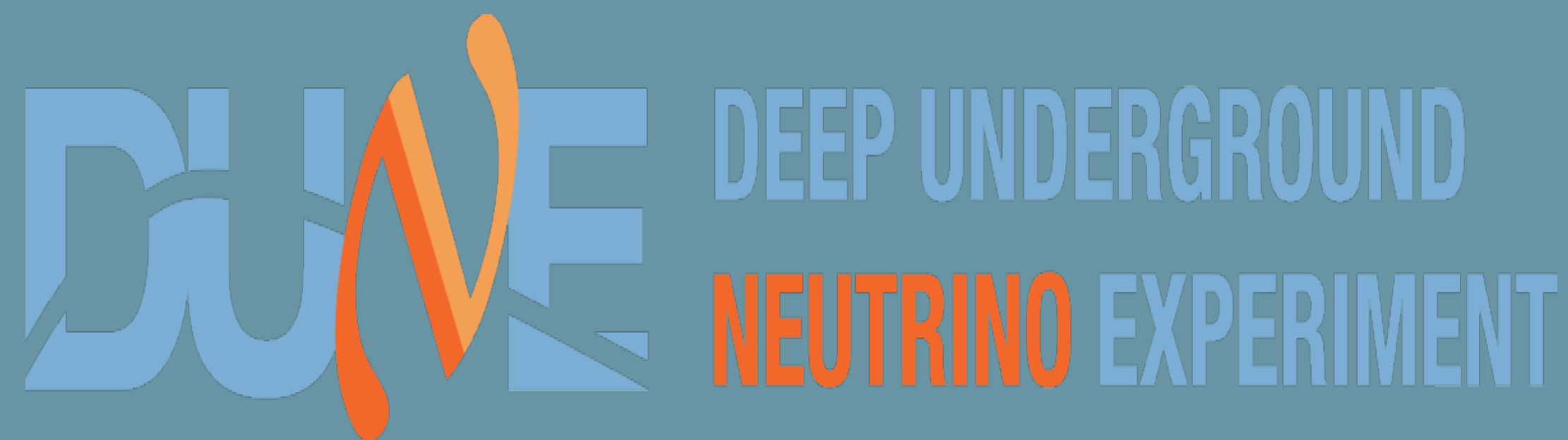


LIGHT YIELD MAP CONSTRUCTION FOR THE FD2-VD PDS

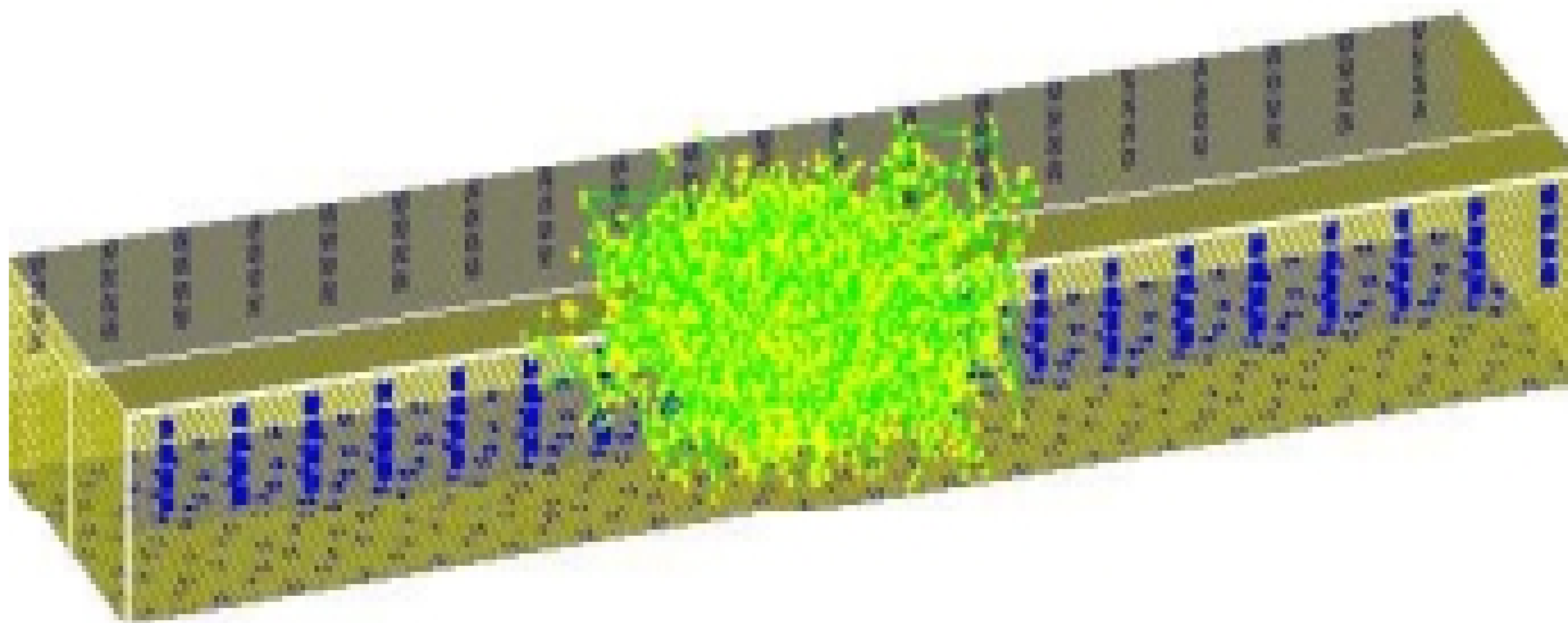
Hamza Amar Es-sghir

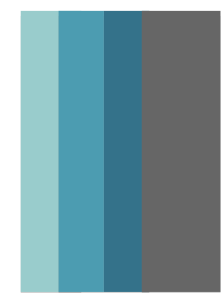


INTRODUCTION

LY MAP CONSTRUCTION FOR THE FD2-VD

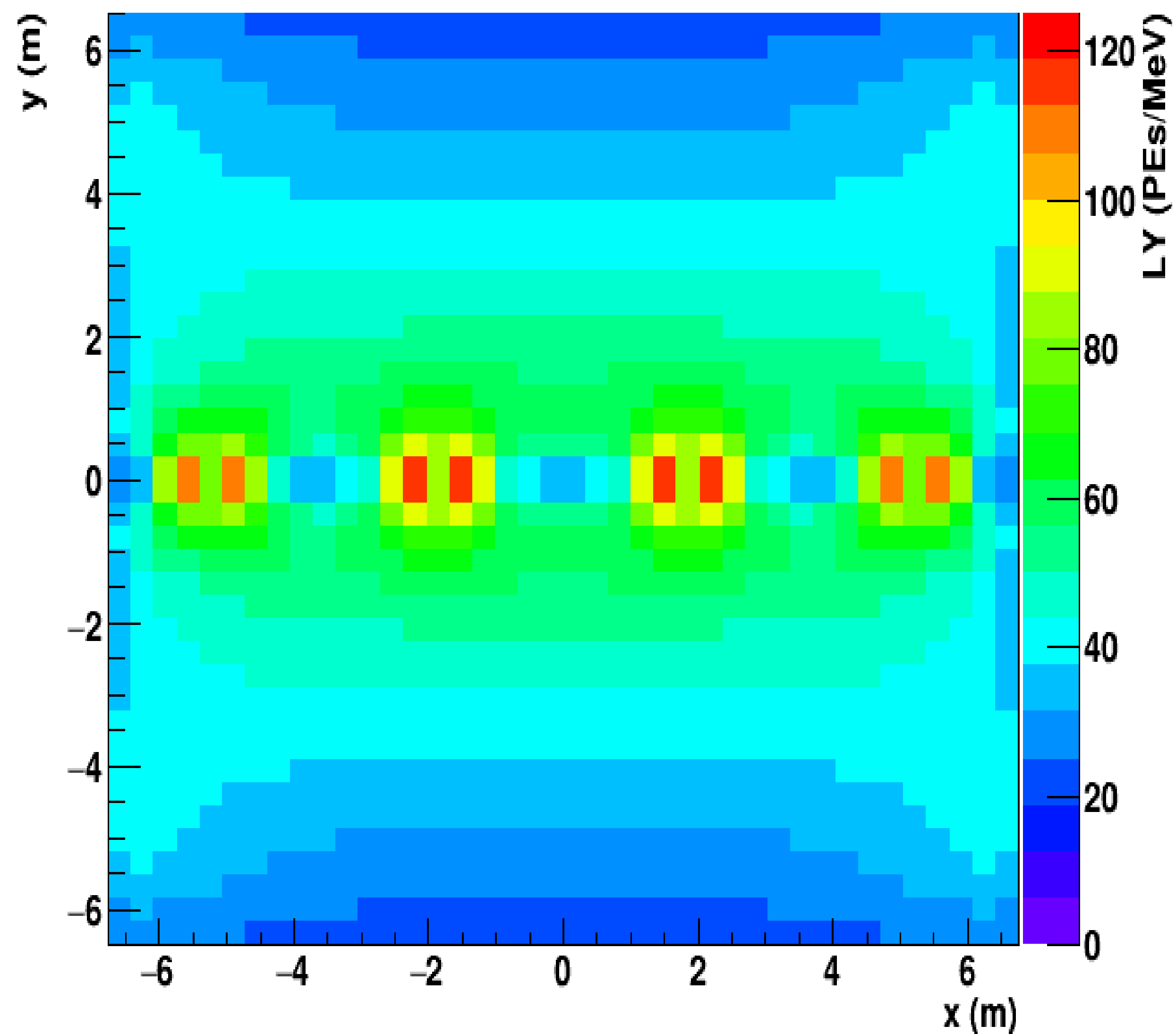
- Purpose: reproduce the LY map at $Z=0$ used for the LY map presented in the CDR.
- Usage of the Standalone simulation (Geant4). Laura Paulucci & Franciole Marinho.
- Geometry: upper part of the FD2-VD.
- 160 ARAPUCAs on the membrane wall. 320 at the cathode.





RESULTS

LY MAP CONSTRUCTION FOR THE FD2-VD



25000 ph/MeV of energy deposited.

75 % Xe (175 nm). 25 % Ar (128 nm).

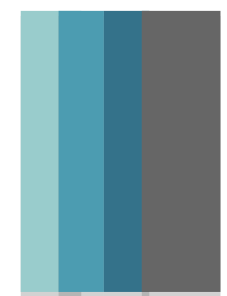
3 % of detection efficiency.

Cathode. $T = 80\%$.

Anode. $R(\text{Xe}) = 20\%$.

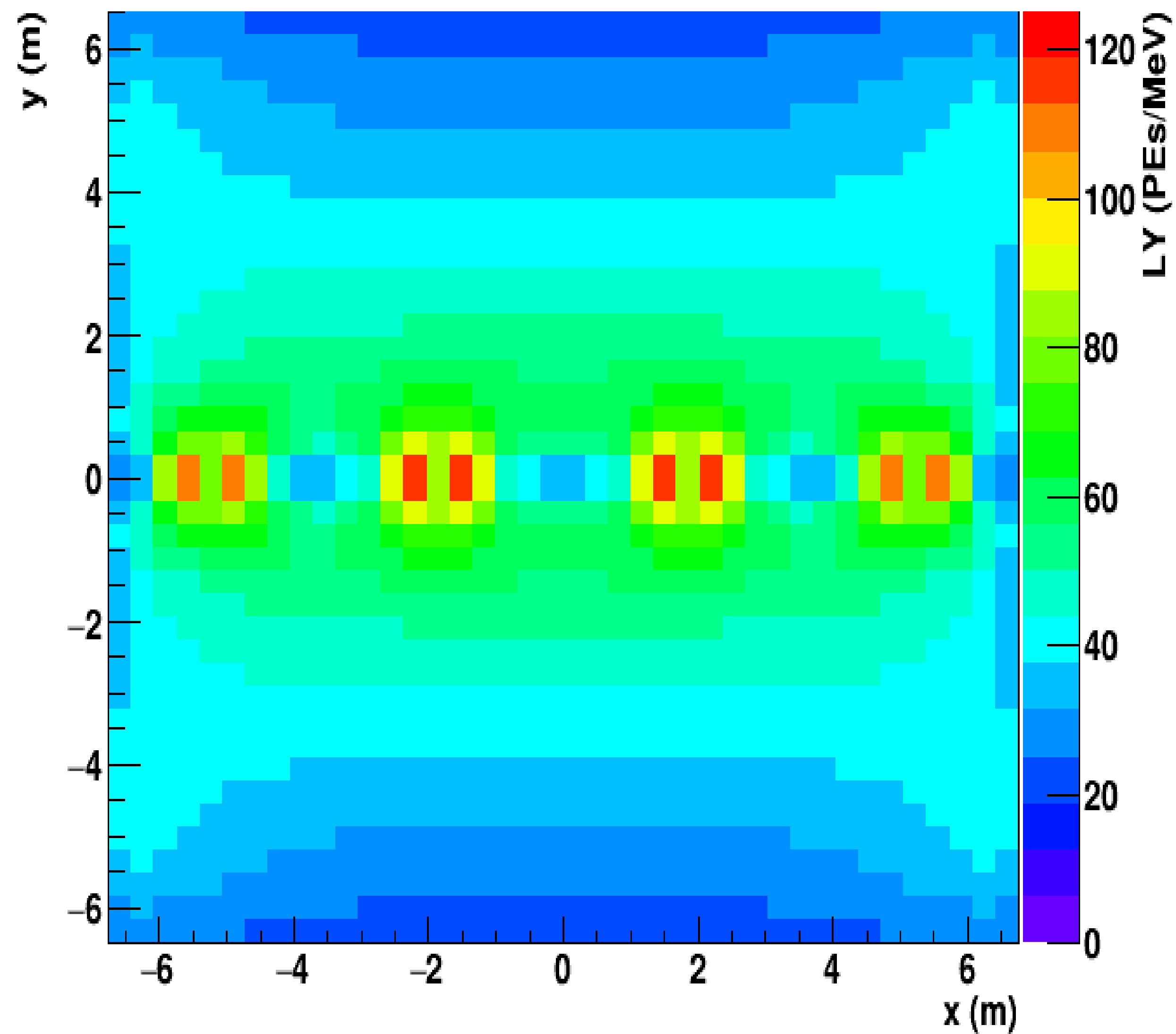
Rayleigh scat. length: 99.9 cm (Ar), 8.9 m (Xe).

Absorption length: 50 m.

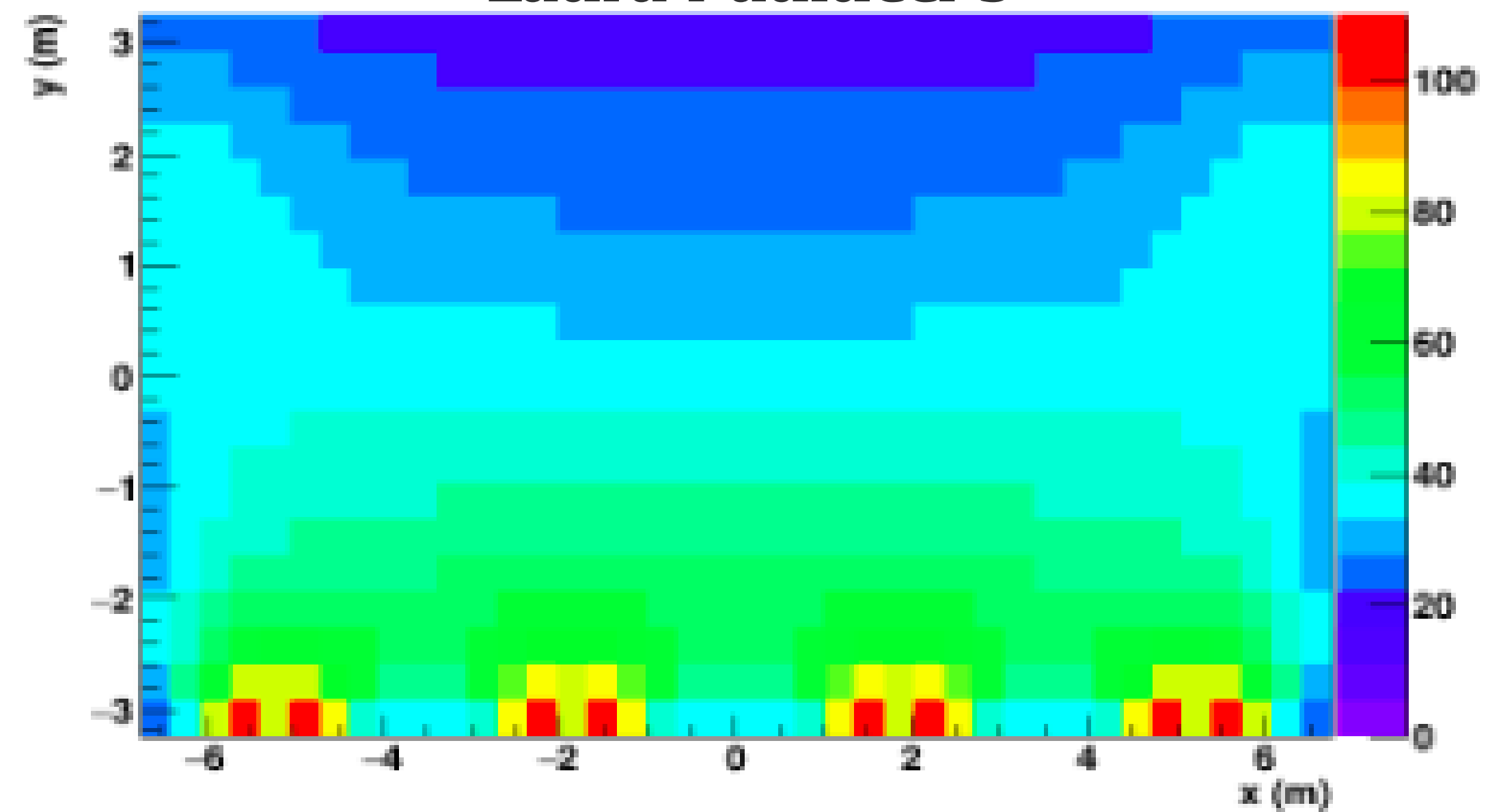


RESULTS

LY MAP CONSTRUCTION FOR THE FD2-VD

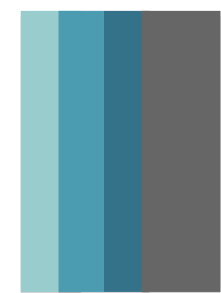


Laura Paulucci's



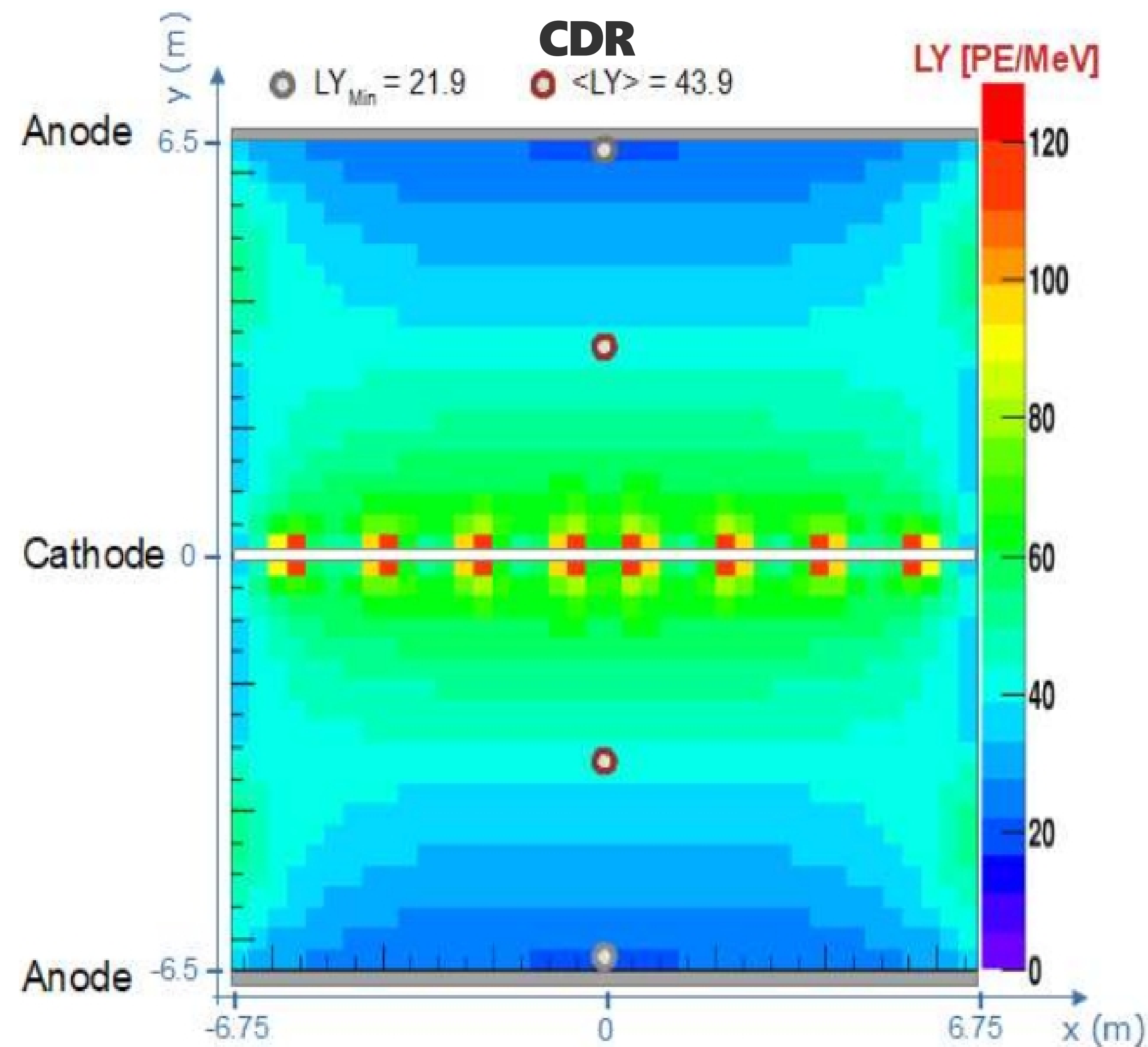
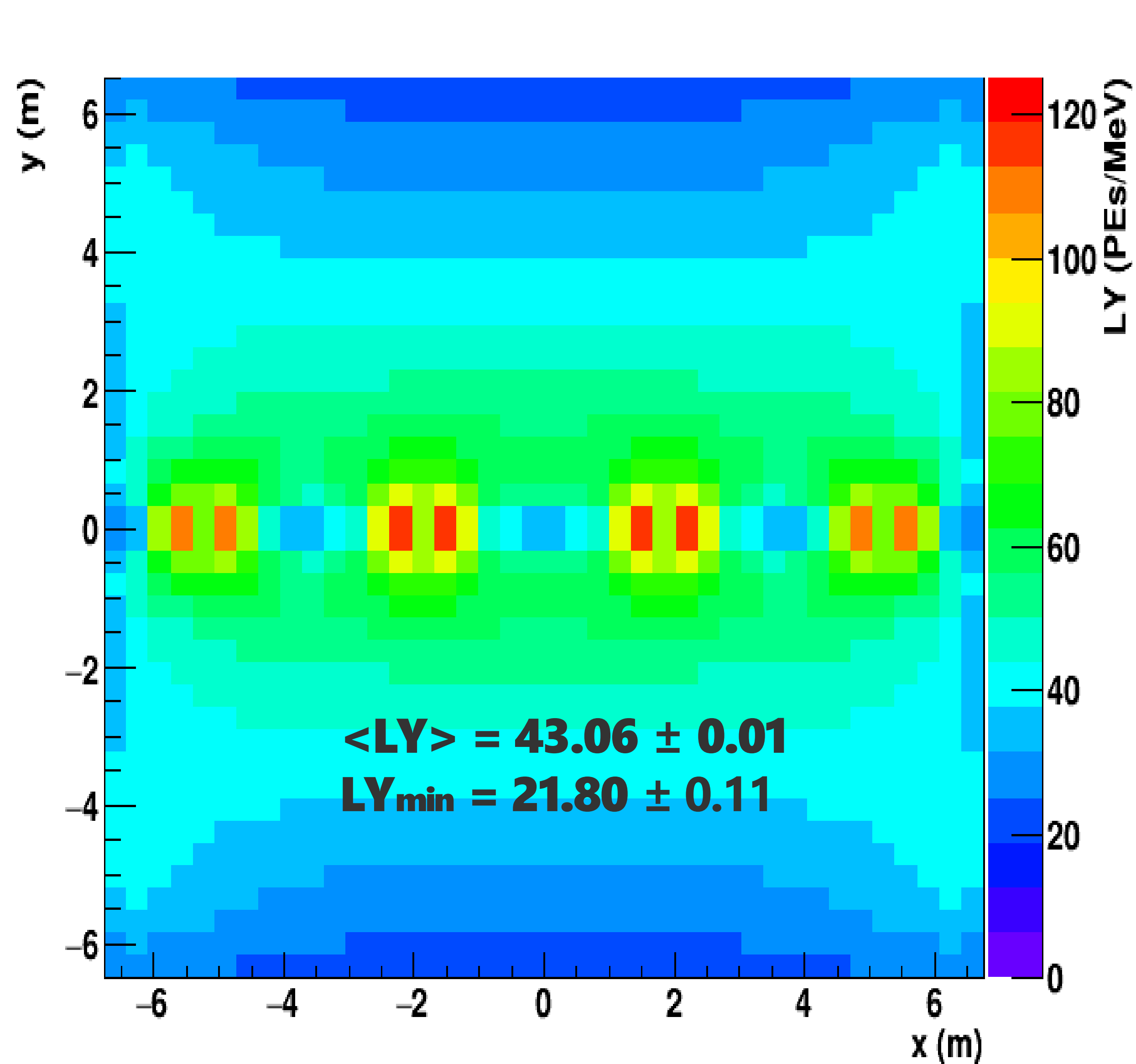
■ Rather similar between them.

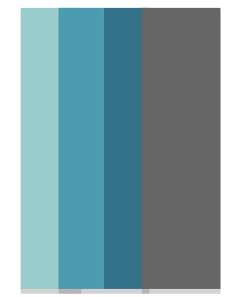
■ LY values?



RESULTS

LY MAP CONSTRUCTION FOR THE FD2-VD





NEXT STEPS

LY MAP CONSTRUCTION FOR THE FD2-VD

- Optimize the geometry of the reference design. Aim: ARAPUCAs on the membrane wall.
- Currently, simulations were done with 4x20 ARAPUCAs at each side.
- Interest in those arrangements: 1x80, 2x40 & 8x10.
- Goal: improve the $\langle LY \rangle$ and the LY homogeneity.

