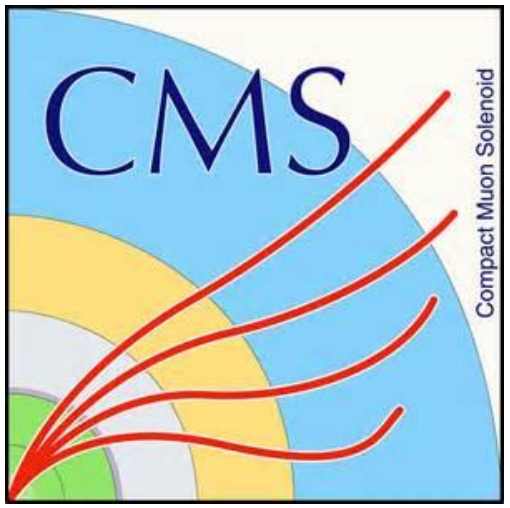
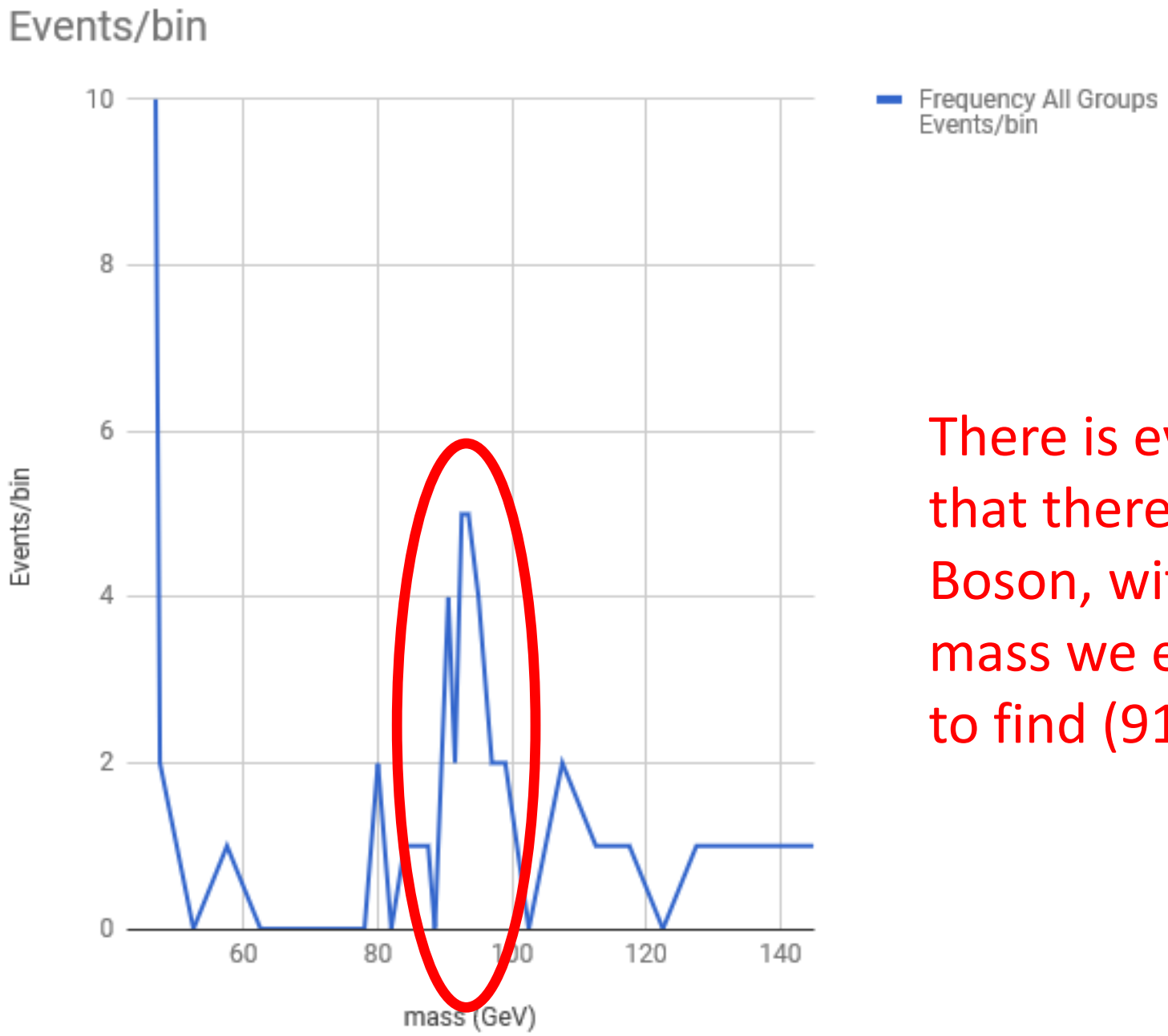


An attempt to prove the Higgs mechanism through experimentation at CMS

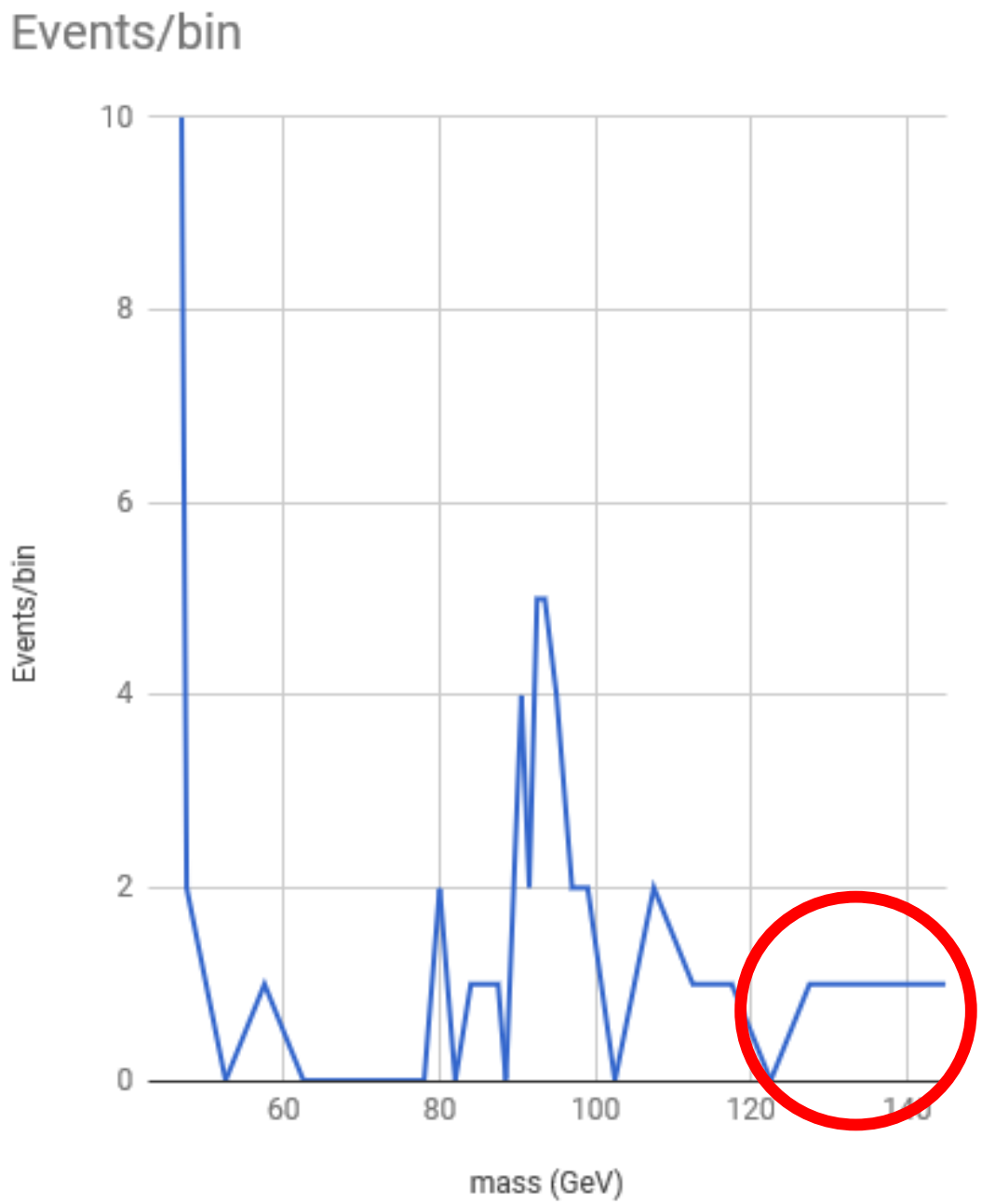
By The ESADE crazy particles team



There is evidence that there is a Z Boson, with the mass we expected to find (91 GeV)

There is also a small evidence for W boson around 80 GeV

This is an experiential confirmation of the standard model theory

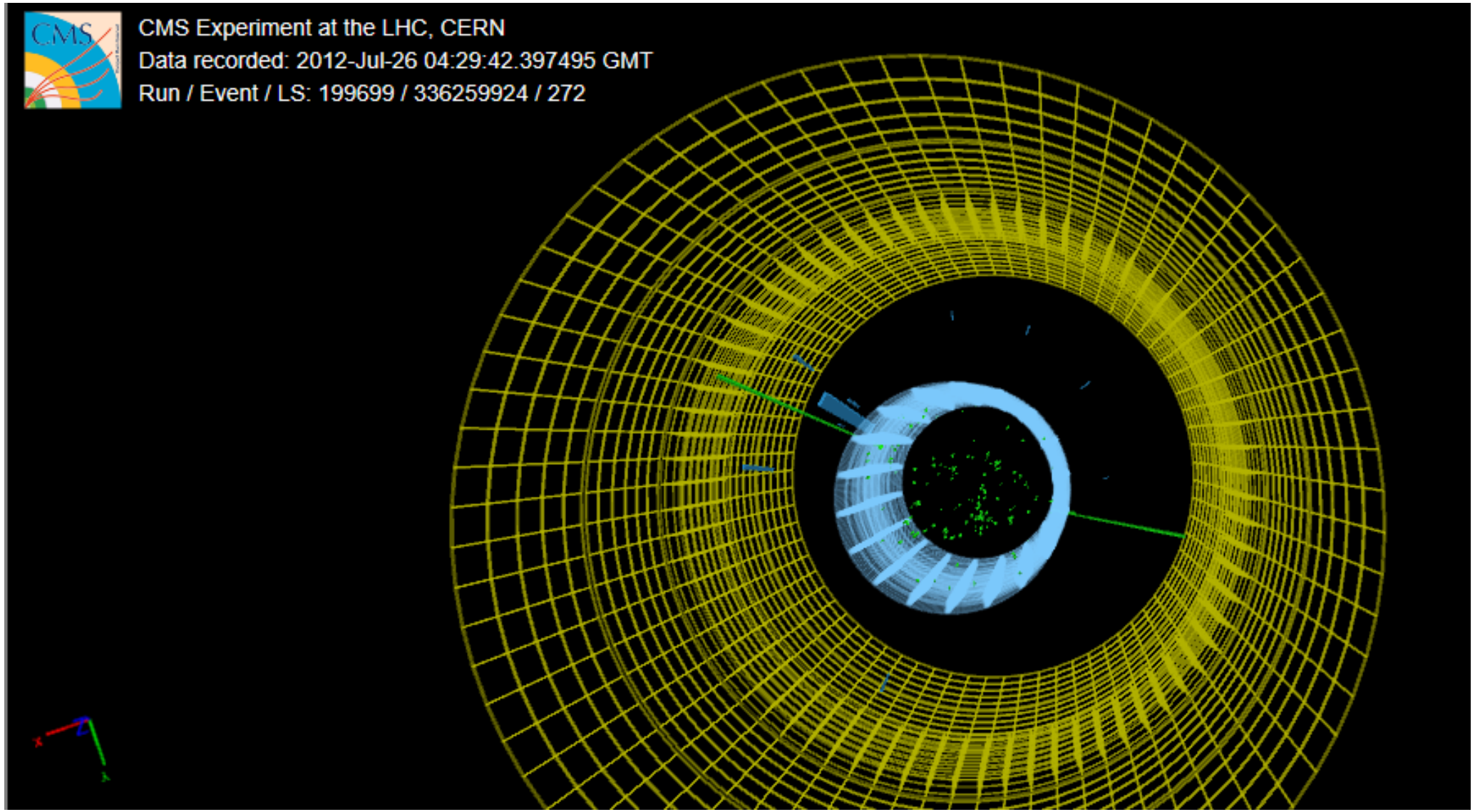


We have also observed 7 Higgs-like events:

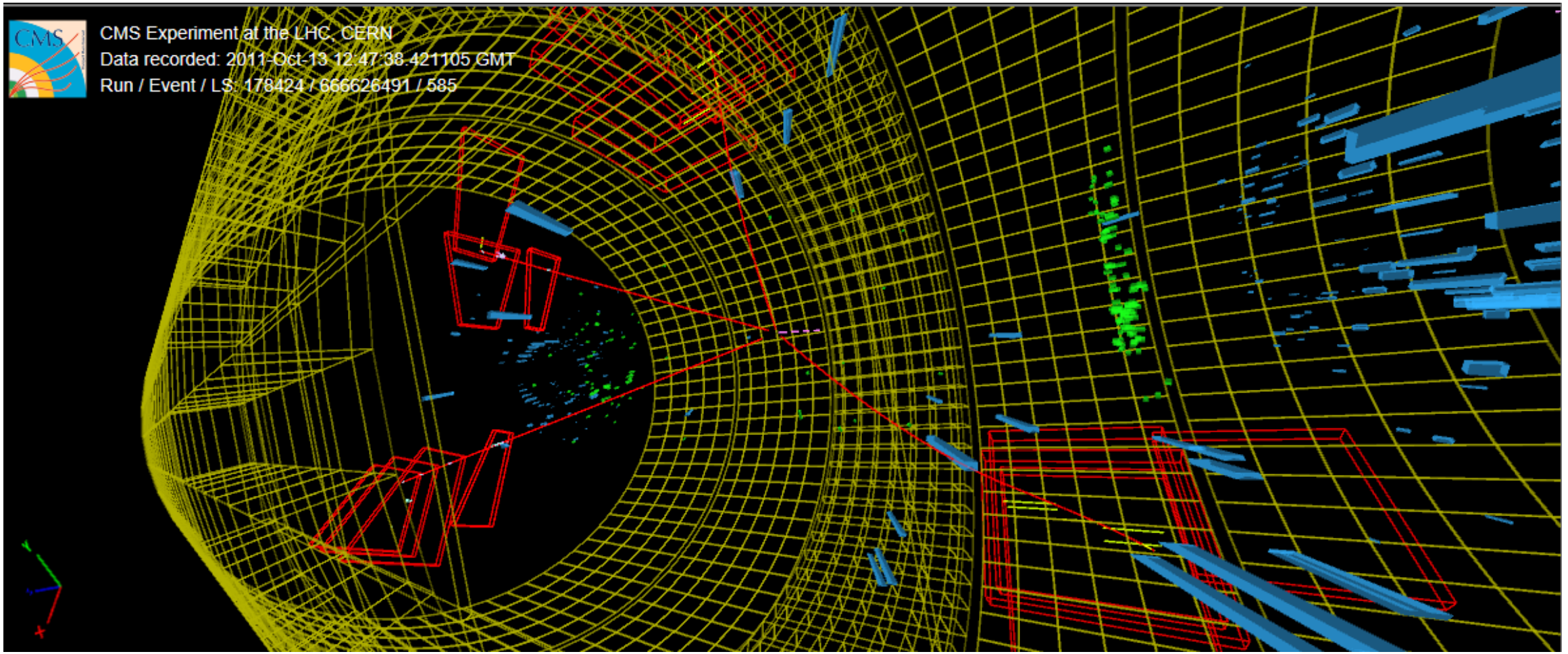
4 two photons
1 two electrons and two muons
2 four muons

Average mass 112 +/- 15 GeV compatible within one sigma with the true Higgs mass value (125 GeV)

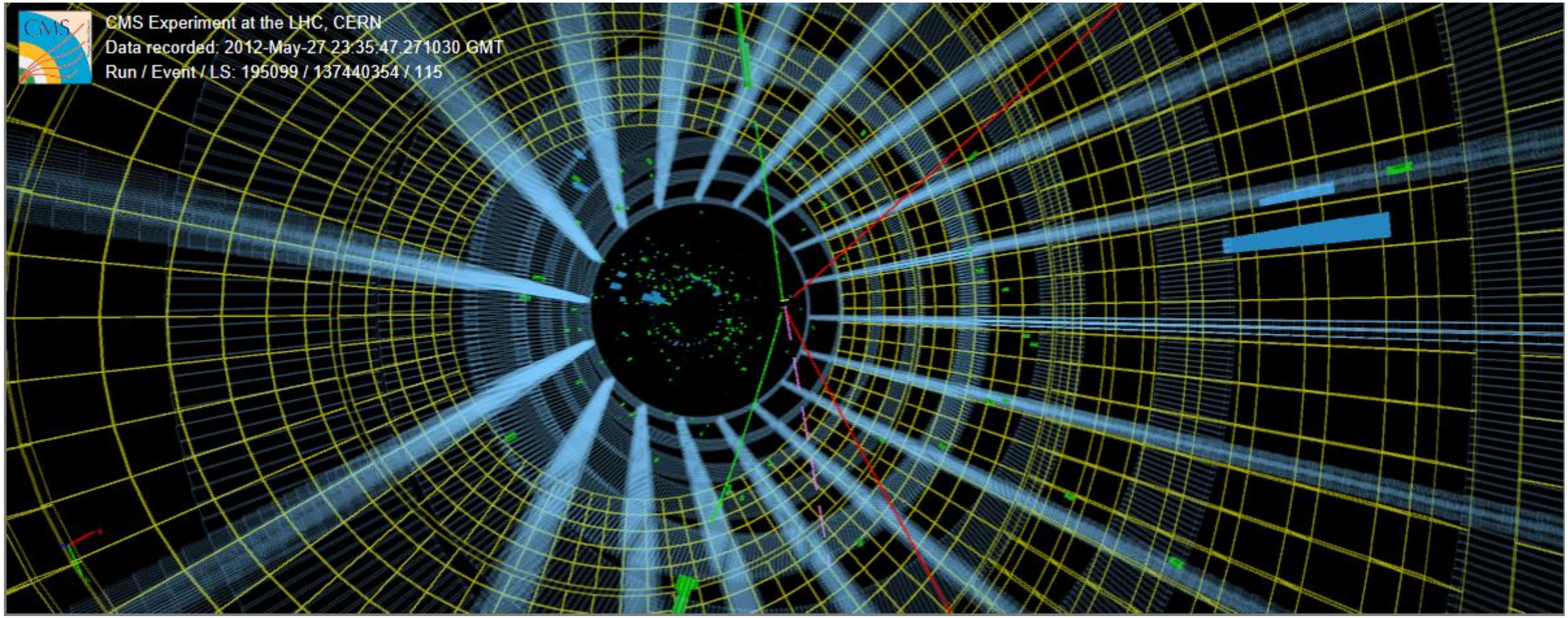
Example of a Higgs-like event with 2 photons and 123.7 GeV



Example of a Higgs-like event with 4 muons and 91.12 GeV

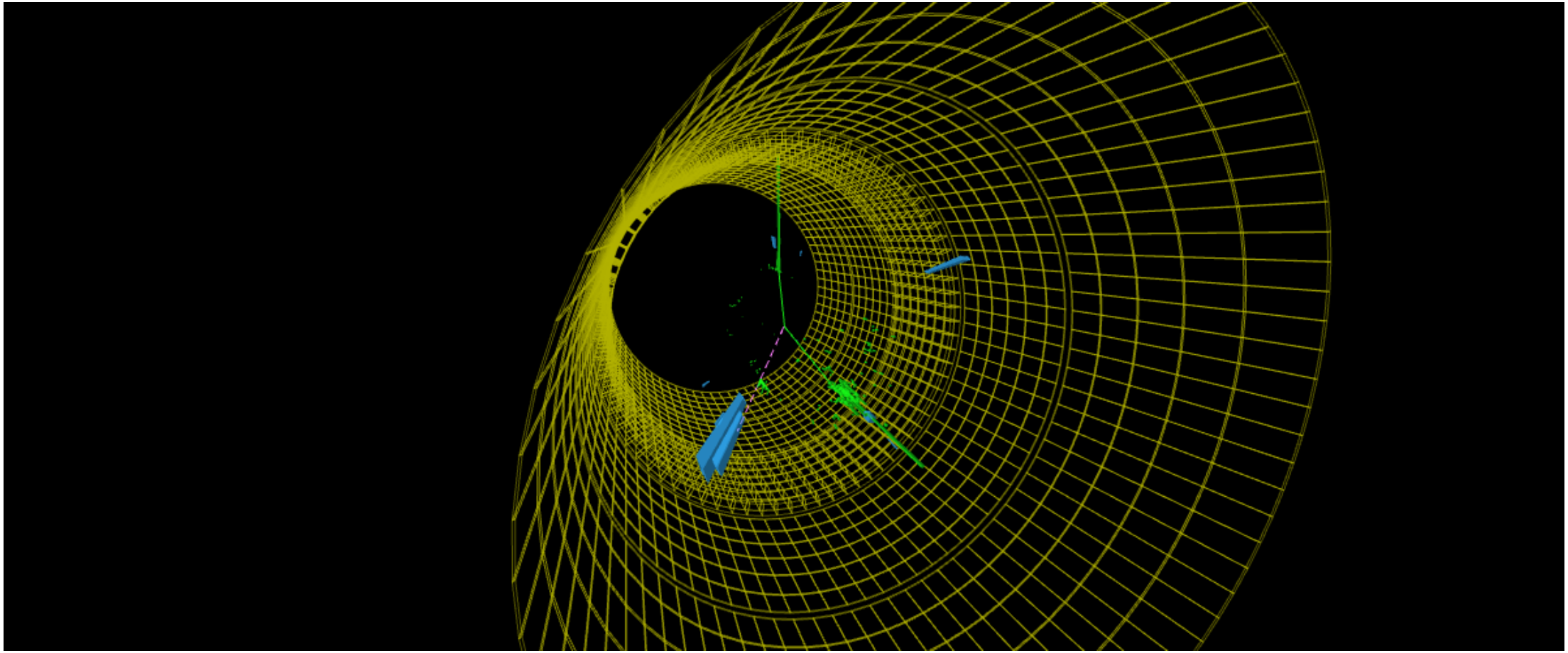


Example of a Higgs-like event with 2 electrons and 2 muons and mis-reconstructed energy with 131.4 GeV

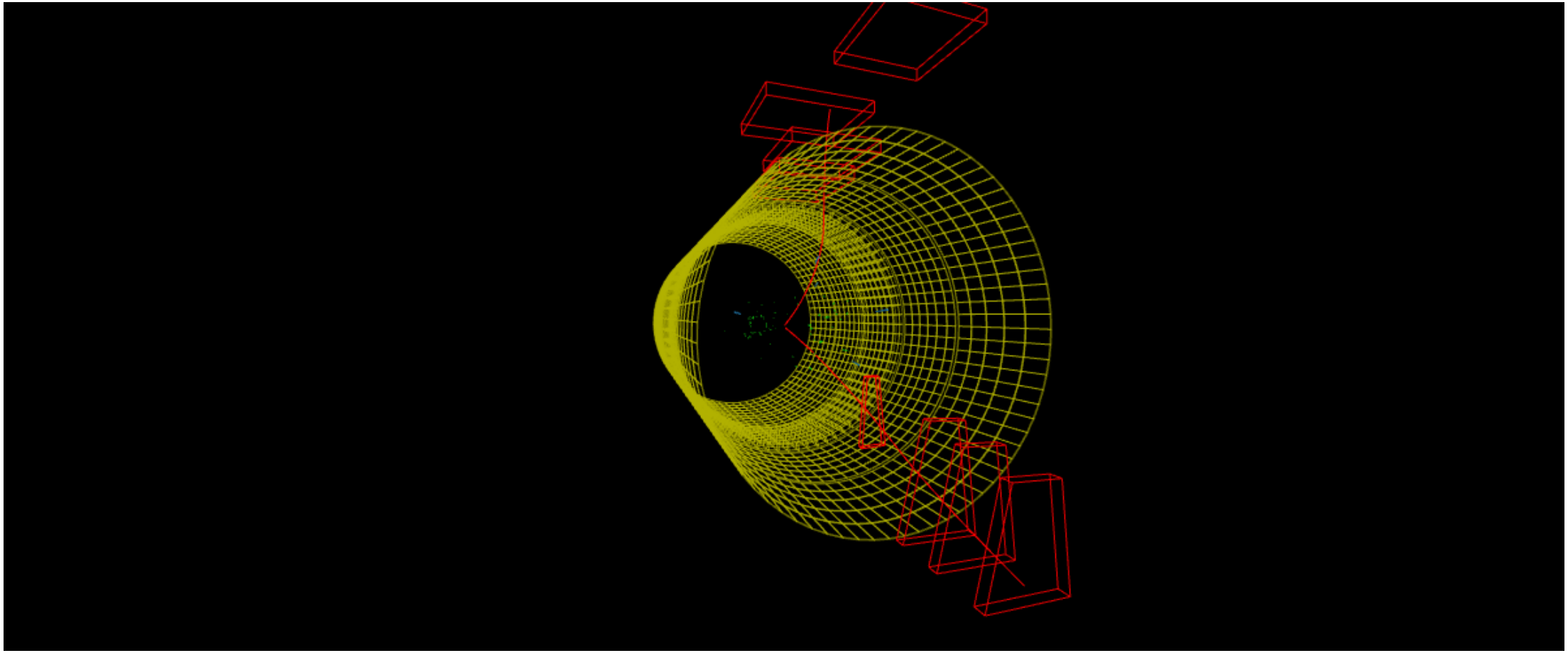


And we also found a bunch of weird things…

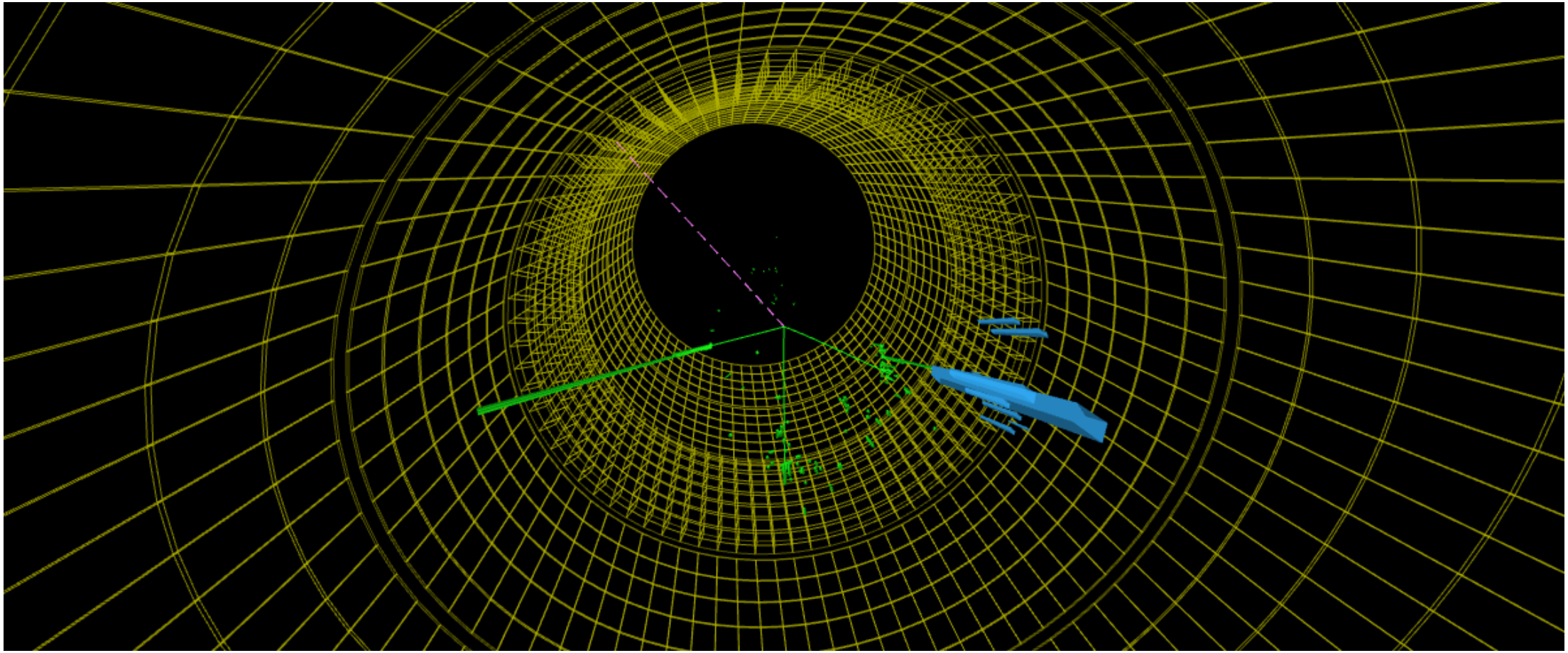
ONE Z WITH MASS 330.04 GeV



ONE EVENT OF 2 MUONS VERY LOW MASS



ONE Z OF 2 ELECTRONS AND 1 W OF ELECTRON AND NEUTRINO (choosing the closest to 91GeV)




ESADE
Inspiring futures