

First steps in the energy reconstruction

- thanks to Berrie and Pol, I am able to create my own simulation files and ntuples
- I have looked at fixed energy (10, 30 and 60 GeV) and fixed incoming angle (0, 25, 50 deg)
- I have played with these files in order to get used to the geometry and the main features of the LAT
- **my purpose** : solving the problem of cracks between modules

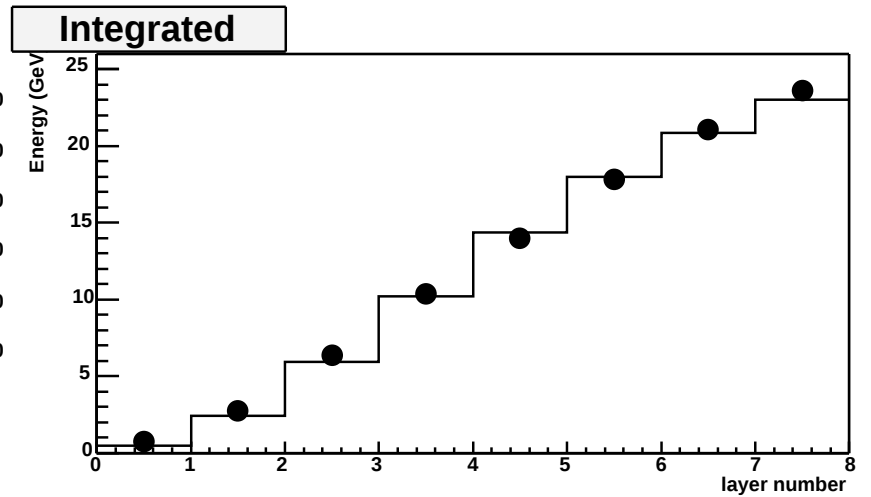
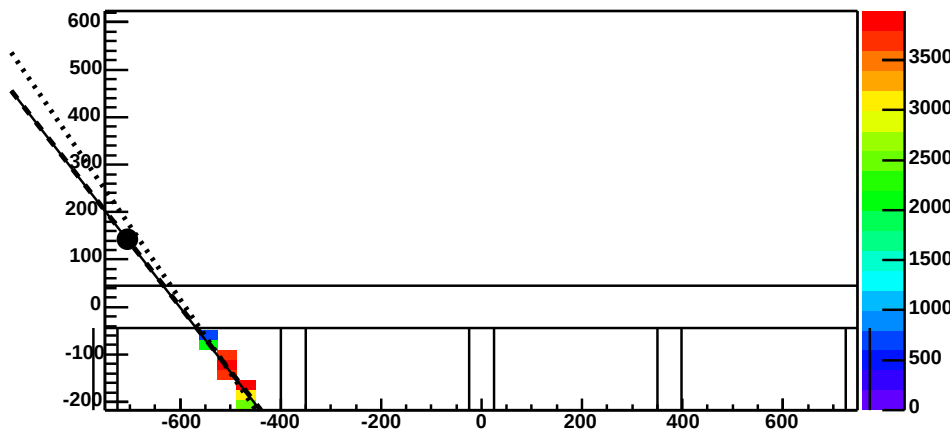
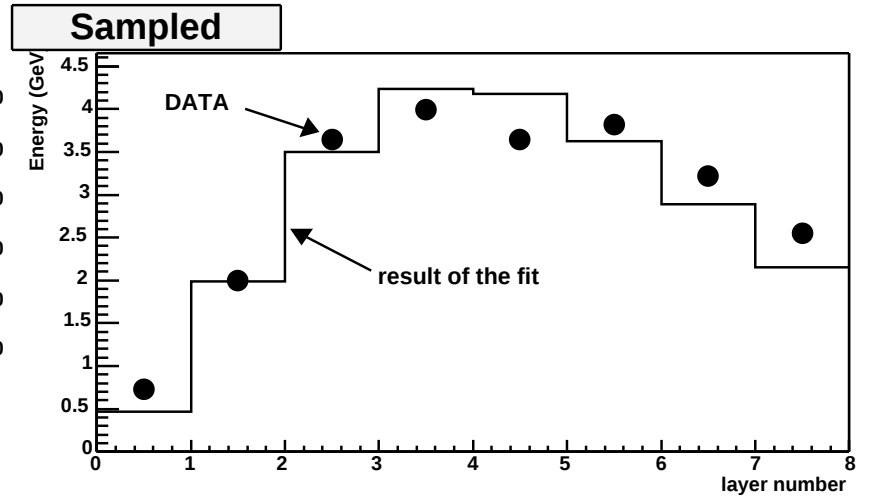
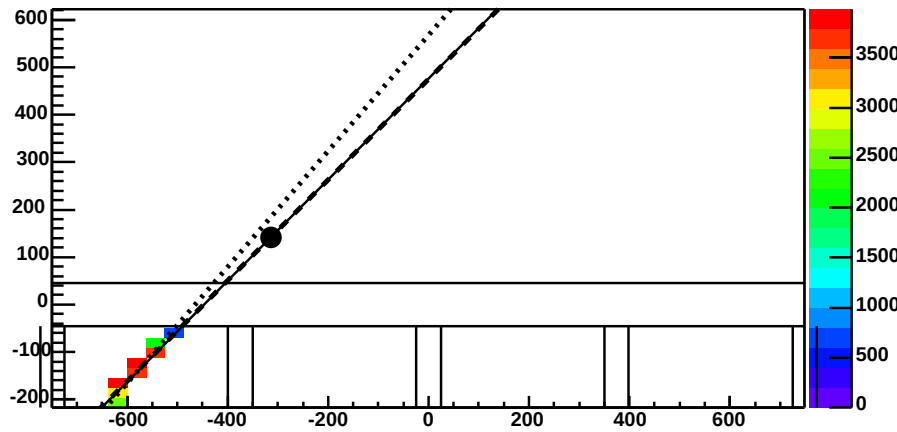
Determining the trajectory in X0 units

- retrieving the trajectory information (from tracker, from calo if no track)
- considering the gamma as a cylinder with a radius = the Moliere radius
- determining the intersection of that cylinder with each tower and each layer
- converting the layers boundaries in X0 units

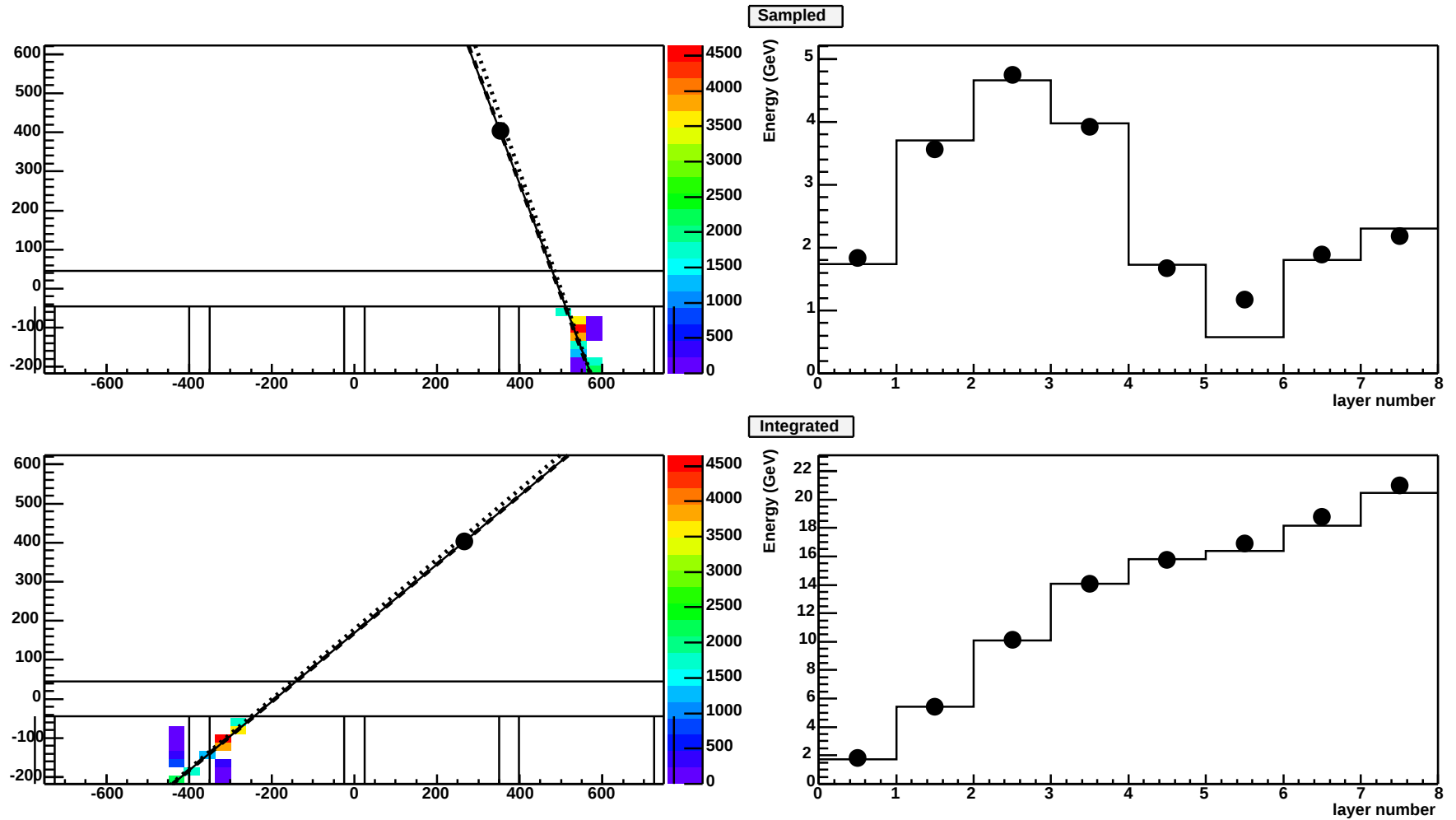
Fitting the profile

- standard gamma function but no average profile
- modifying the parameterization :
 - the maximum of the shower
 - the relative height of the curve at $20 X_0$ s
 - the energy
- requiring that the 2nd parameter is less than 0.2 allows to avoid the high energy tail in the reconstructed energy histogram
- fitting using TMinuit : for each layer the predicted deposited energy is the integral of the profile function between the layer boundaries in X_0 units

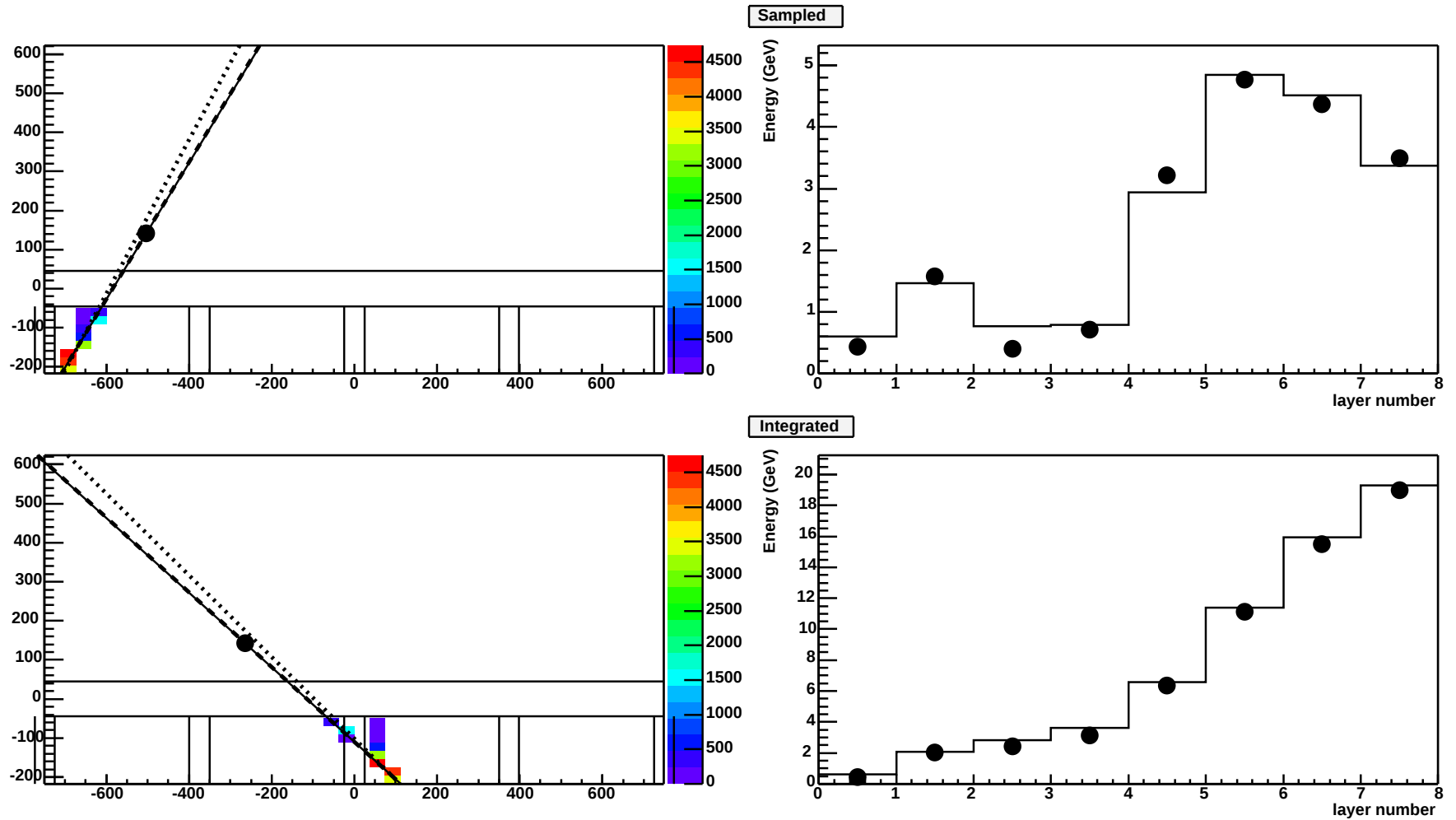
Fully contained event



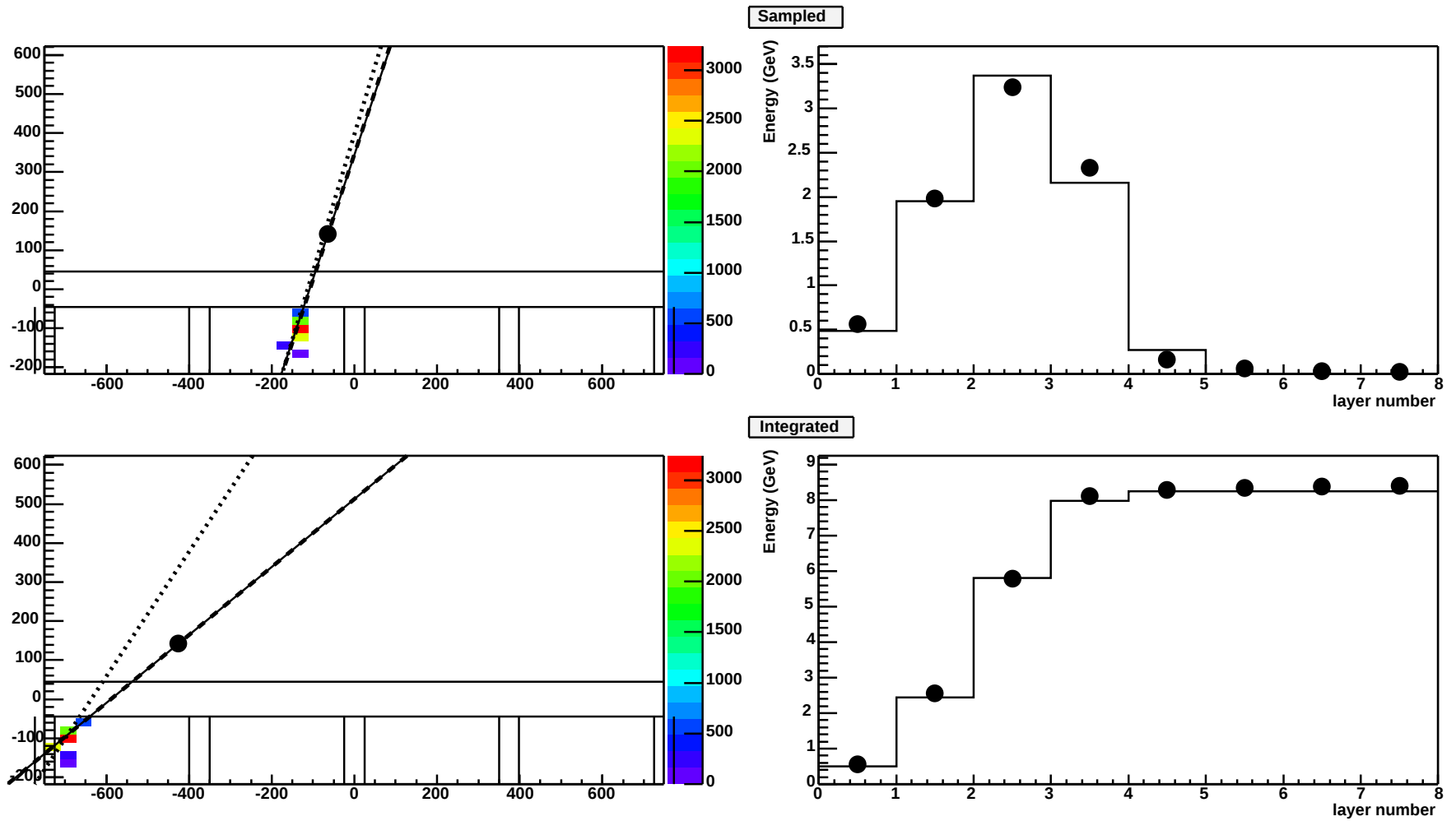
Going through a crack



Going through a crack



Going out



Coming in

