

GEANT-3 simulation of CASTOR

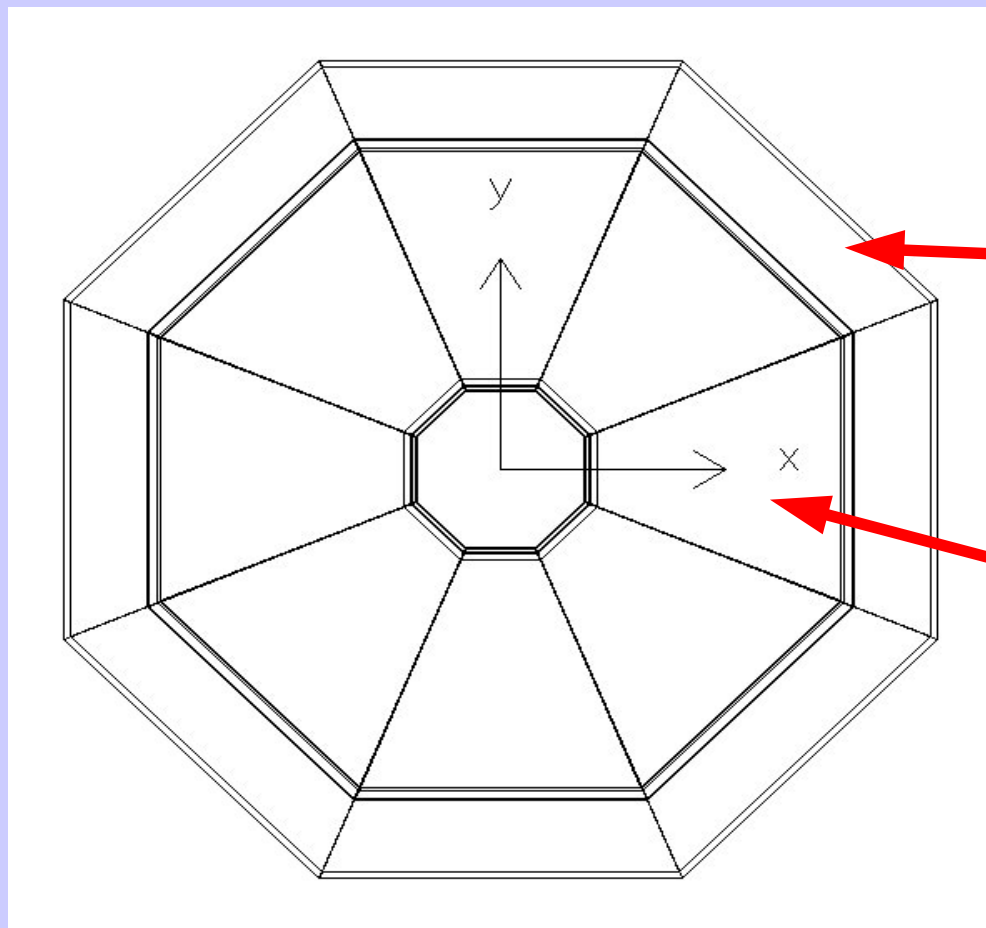
V.Andreev

- ◆ Introduction
- ◆ Geometry description
- ◆ Calorimeter response
- ◆ Energy distribution
- ◆ Summary

Introduction

- CASTOR simulation is done on base of GEANT-3
- Geometry description is "very close" to real
- Calorimeter response is proportional to range of charged particles
- Deposited energy in quartz plates is also calculated for the comparison
- Leakage and "invisible" energies are calculated
- Light collection is not introduced yet

Geometry description

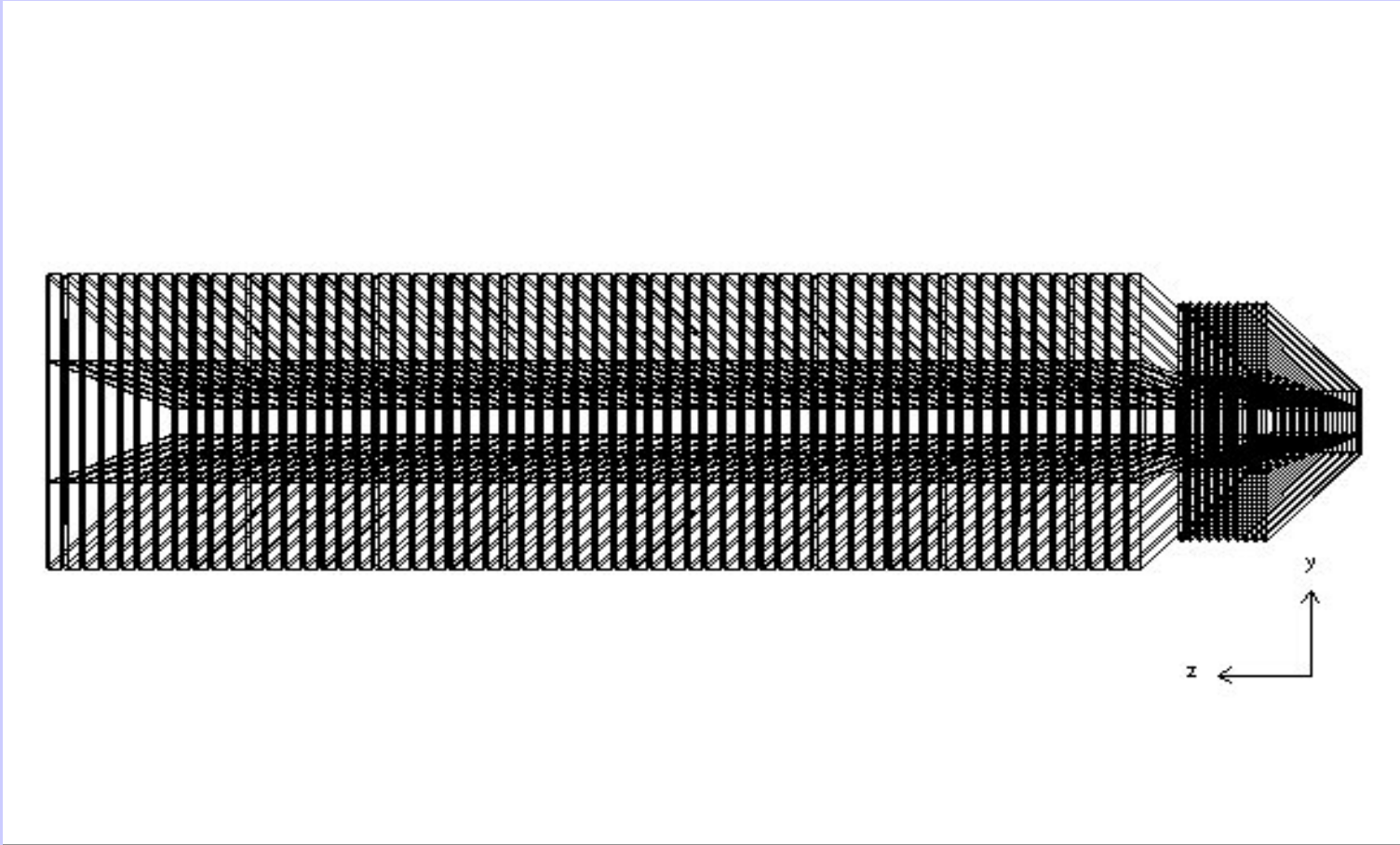


HAD part

EM part

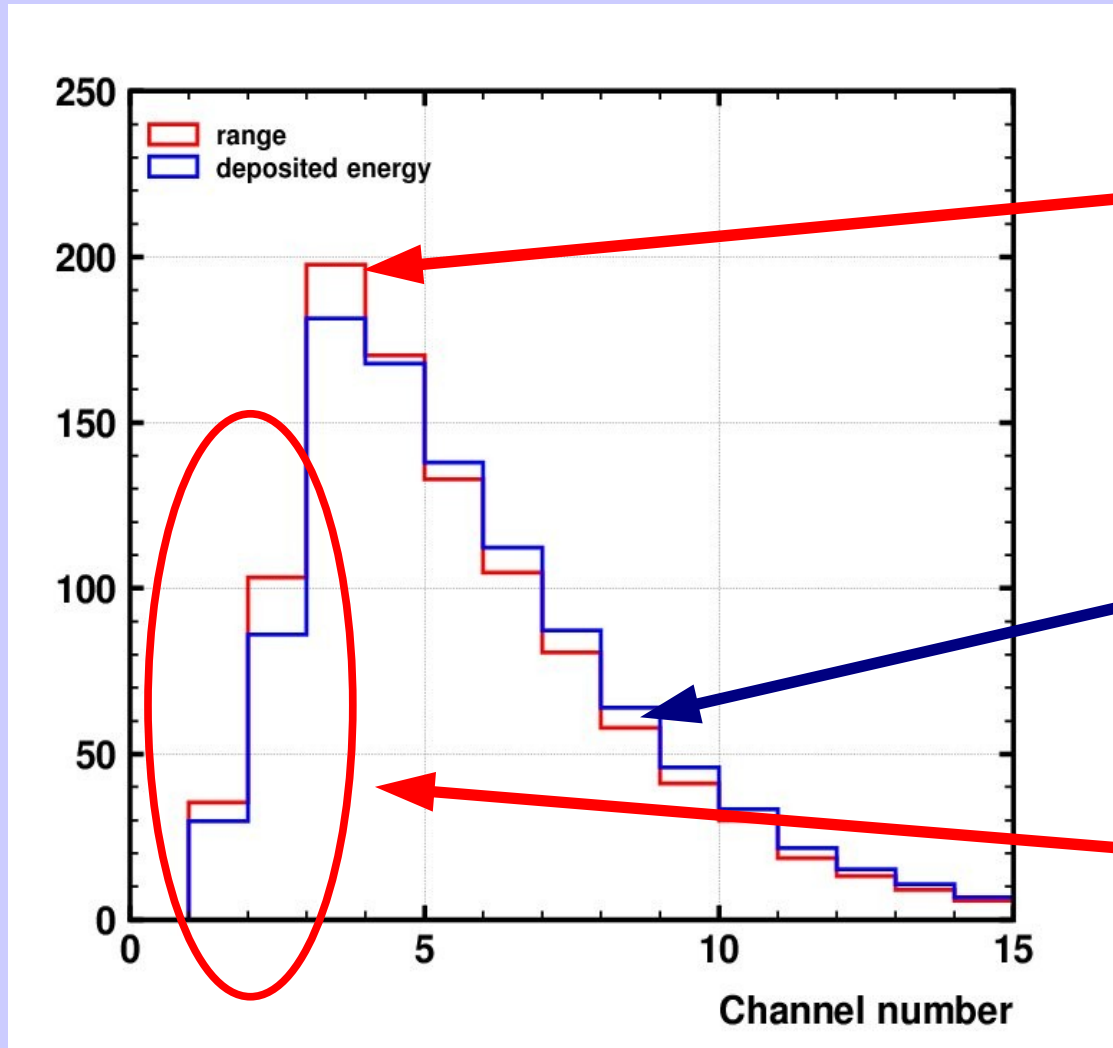
Front view

Geometry description



Side view

Longitudinal distribution (350 GeV pions)

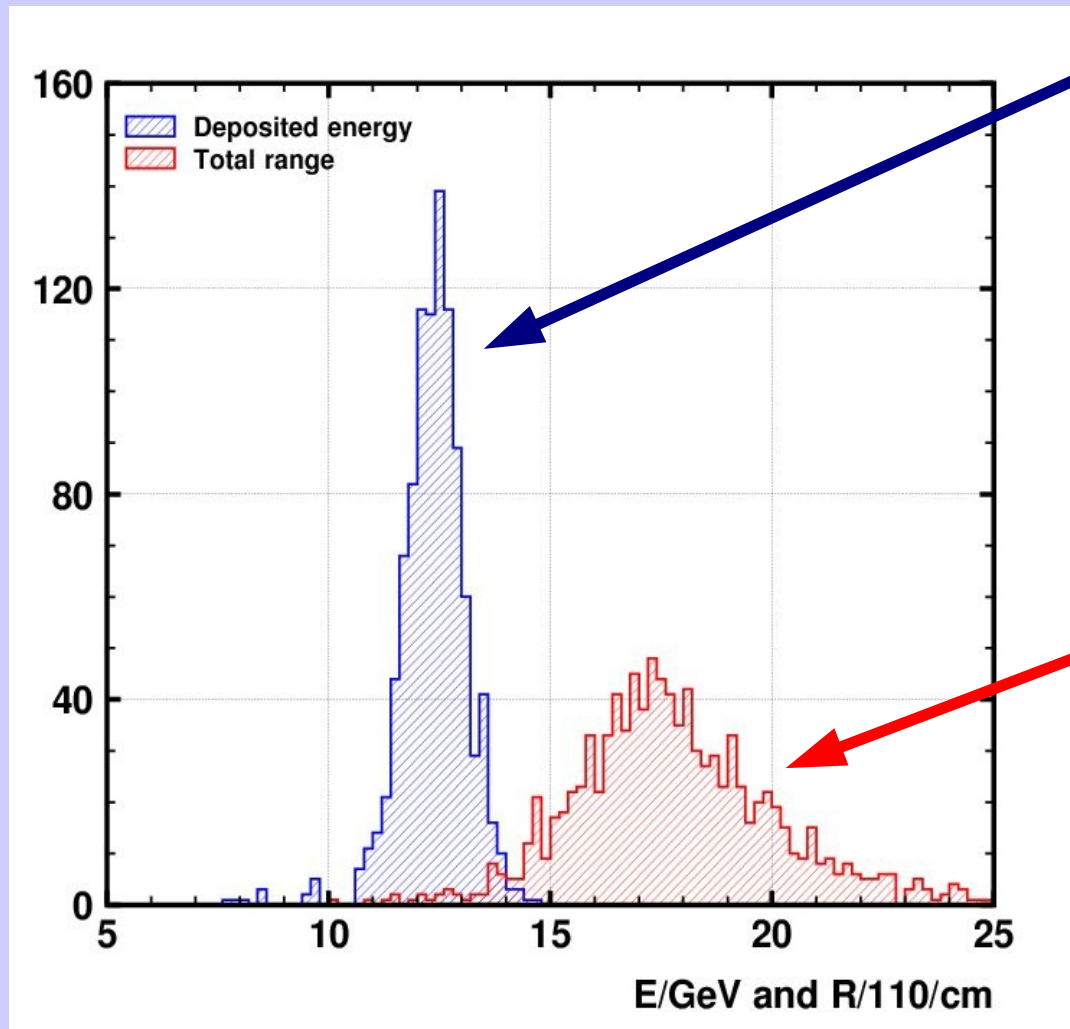


Range

Energy

EM part

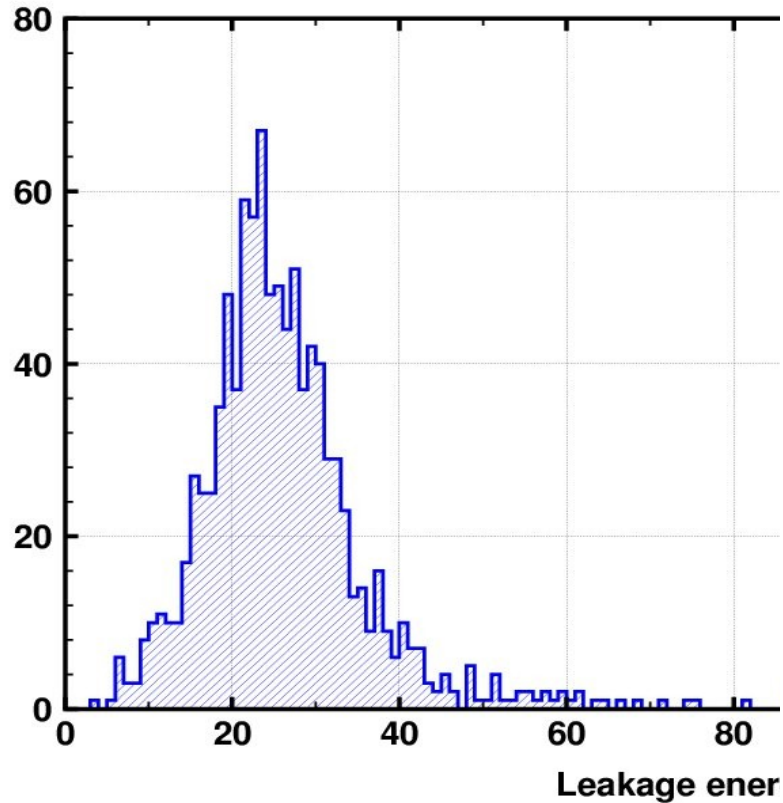
350 GeV pions



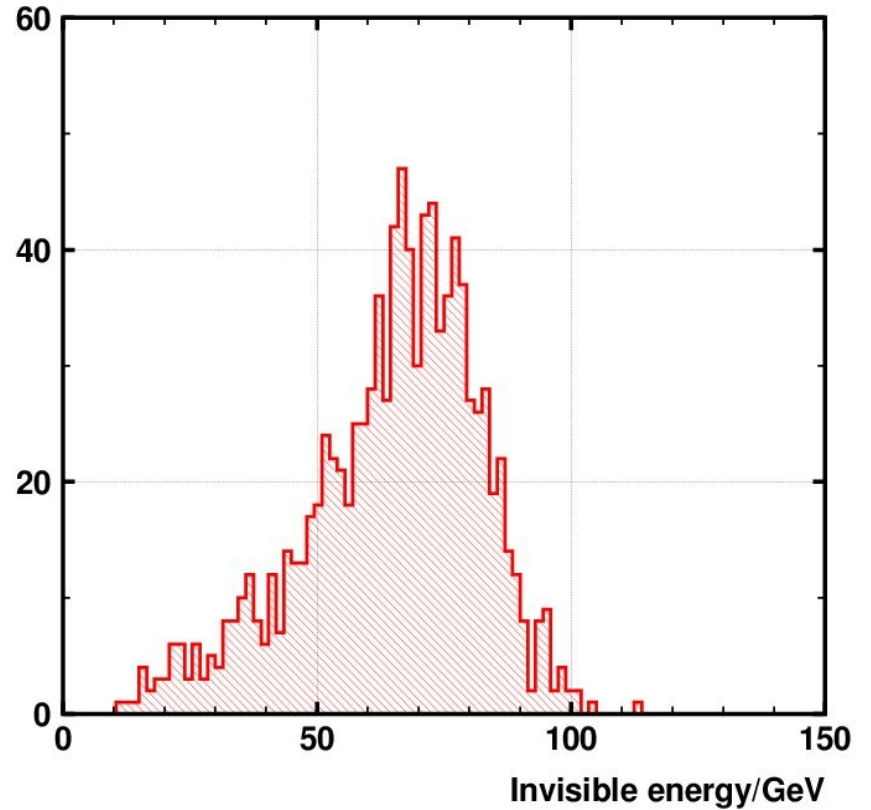
Deposited energy in quartz plates

Total range of charged particles

350 GeV pions

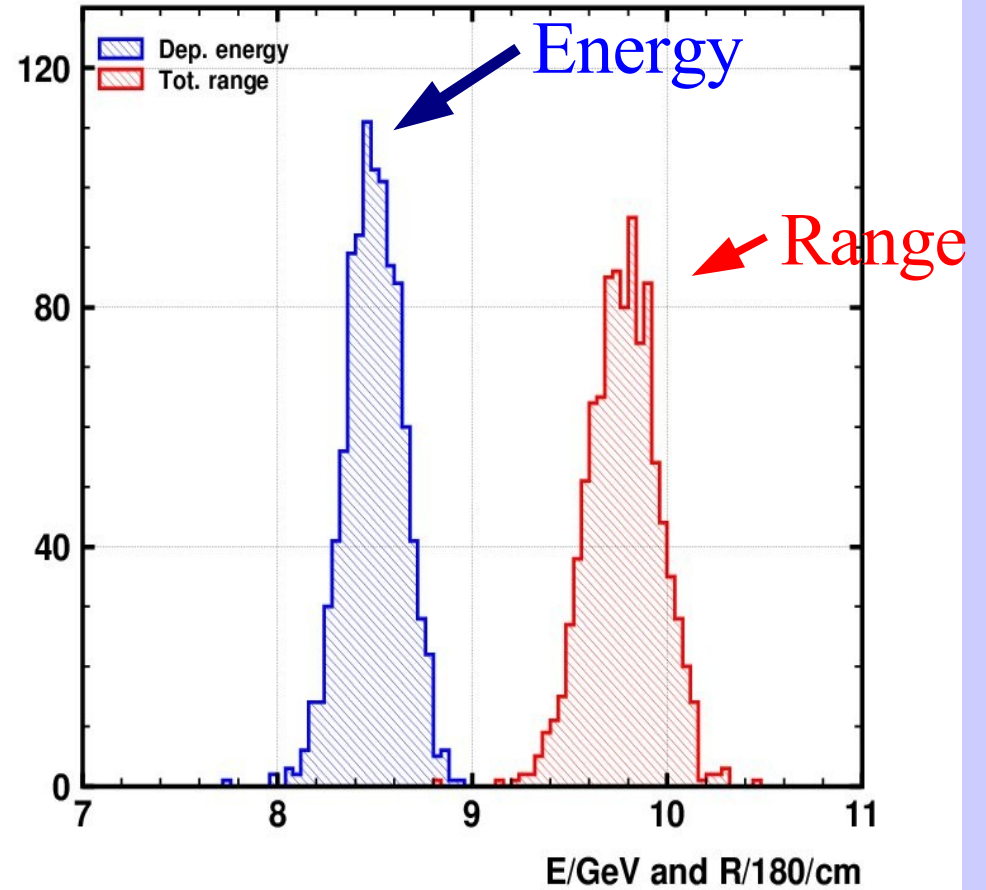
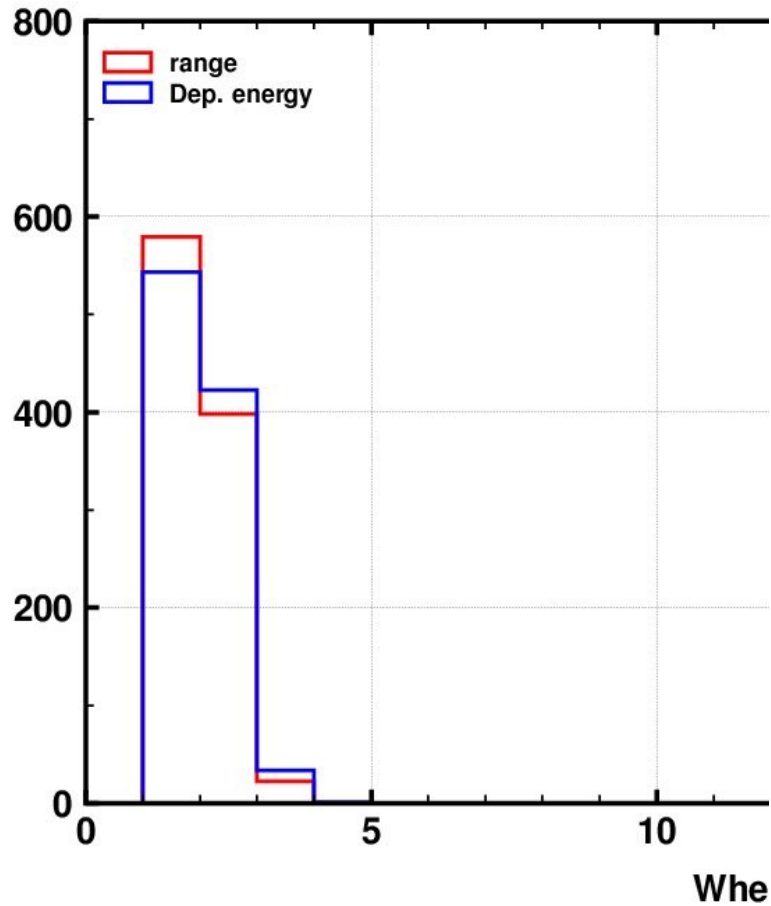


Leakage energy



“Invisible” energy

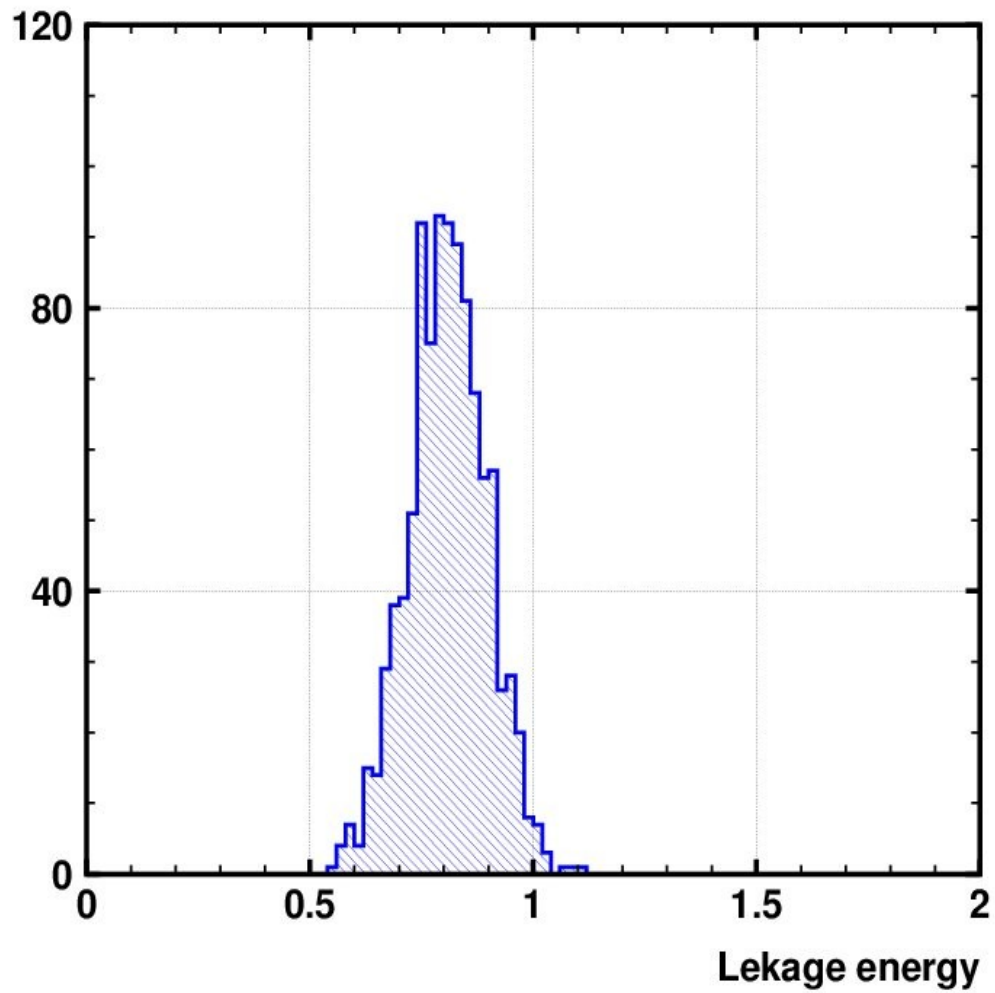
200 GeV electrons



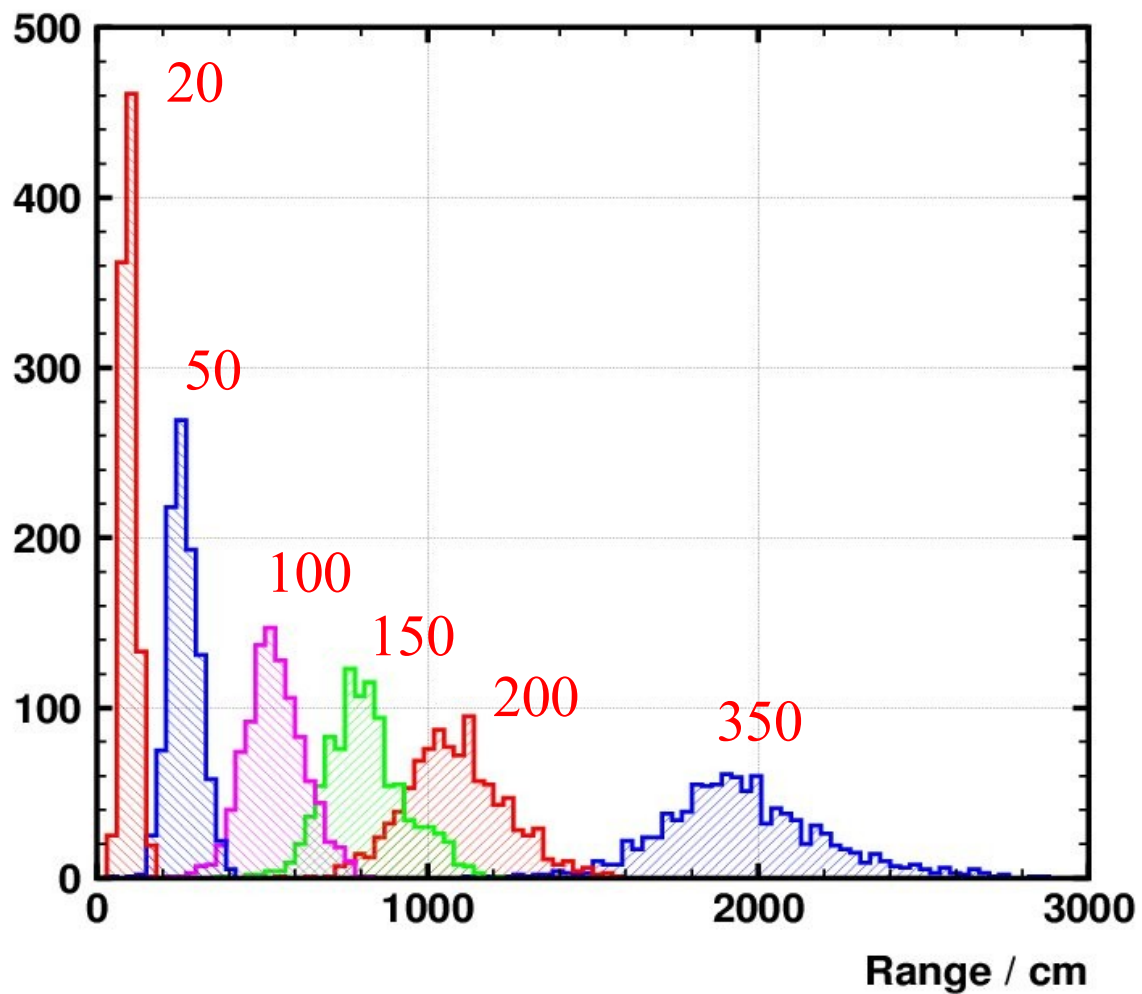
Longitudinal distribution

Deposited energy and range
of charged particles

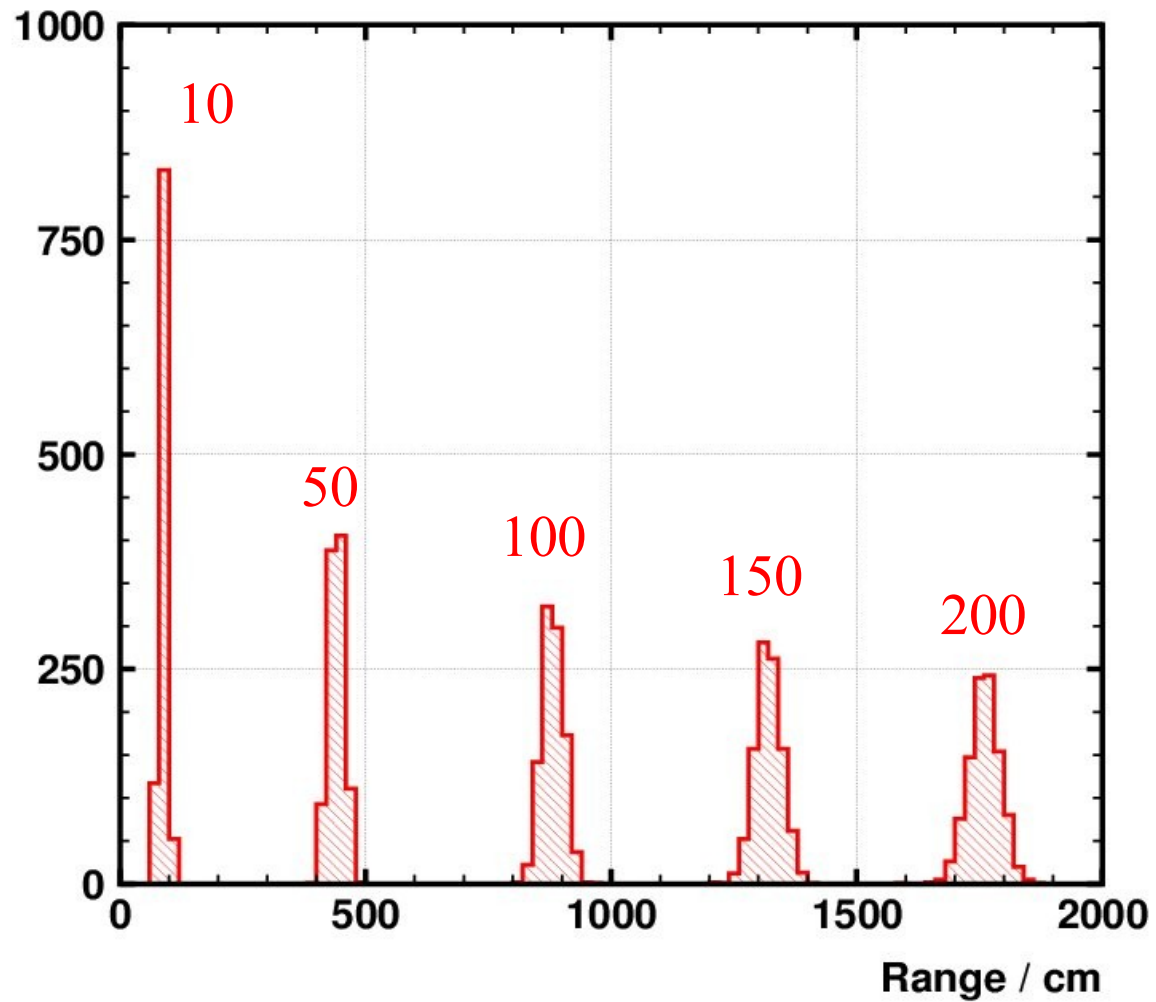
200 GeV electrons



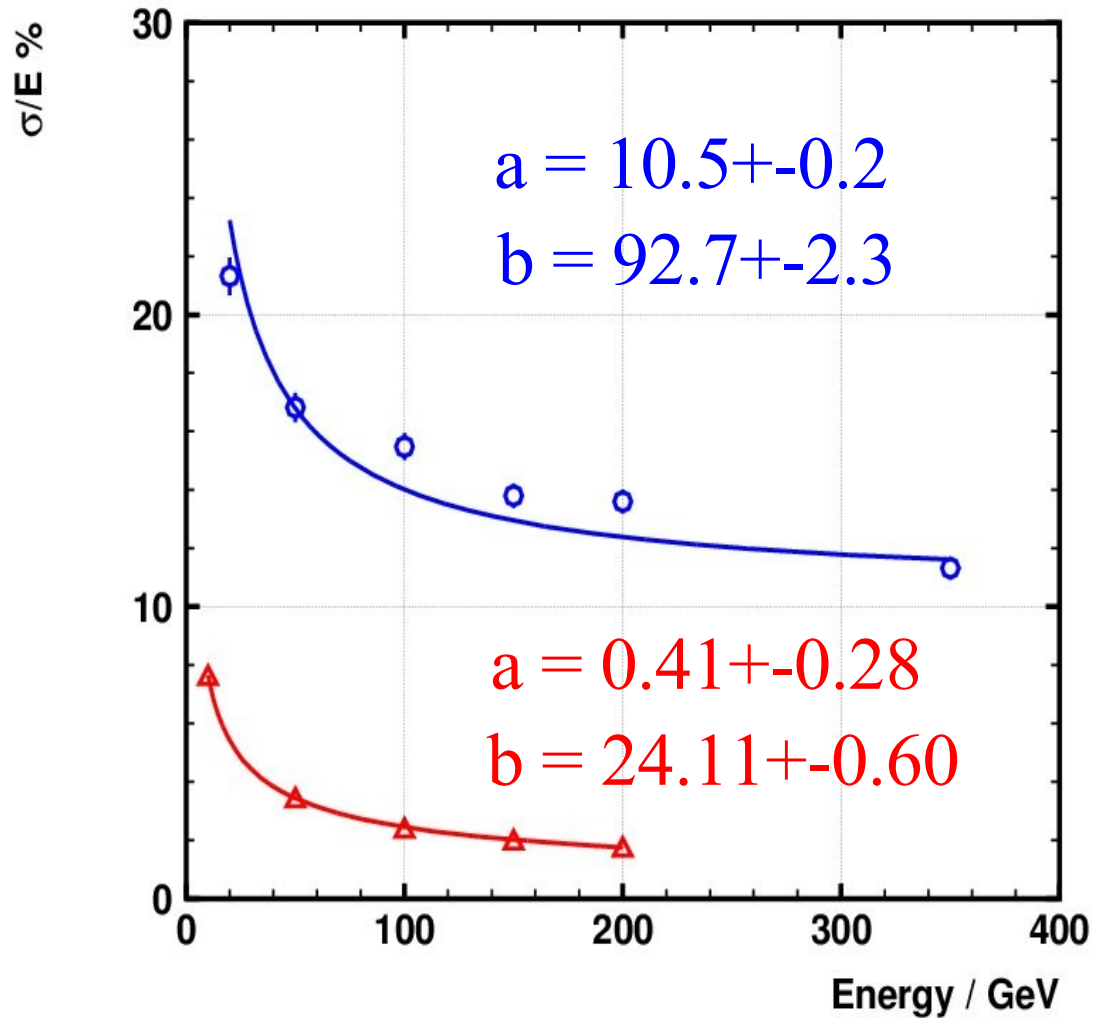
Energy response (range) for pions



Energy response (range) for electrons



Energy resolution for electrons and for pions



$$F = a \oplus b/\sqrt{E}$$

Short summary

There is working version of GEANT-3 CASTOR simulation

It is useful for understanding of CASTOR calorimeter

The light collection will be introduced soon