



Study of shower profile for a test beam

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**MicroMegas Physics Meeting
LAPP, 18 May 2009**



Calorimeter configuration

Geometry:

25 planes (50 cm of Fe (3λ) in total)

Passive layer: 2 cm of steel absorber (0.12λ thick)

Active layer: 6 mm (3 mm of gas), steel cover was not used

Calorimeter dimension: $30 \times 30 \times 65 \text{ cm}^3$

Readout:

Chamber with 32×16 pads (1 cm^2 cell size)

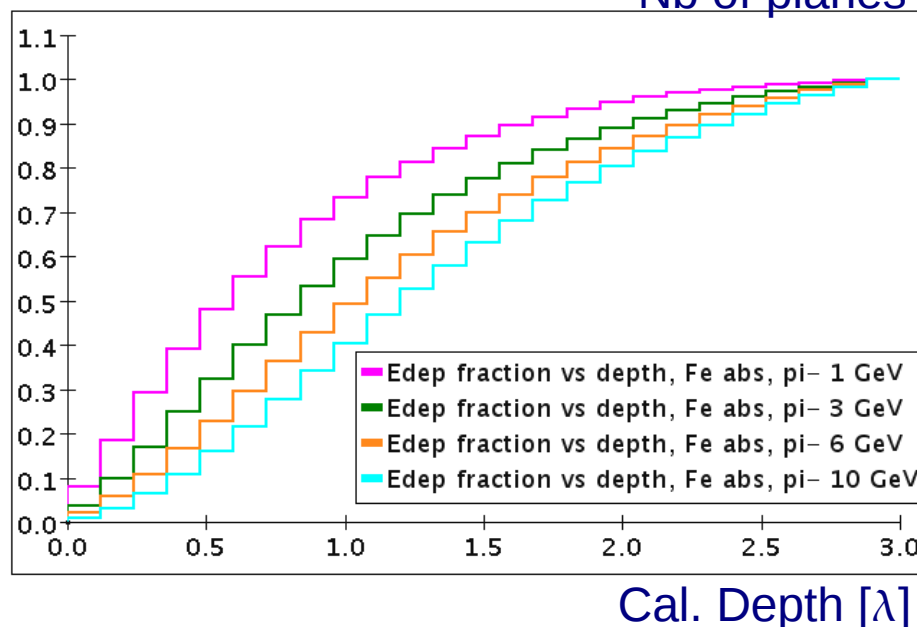
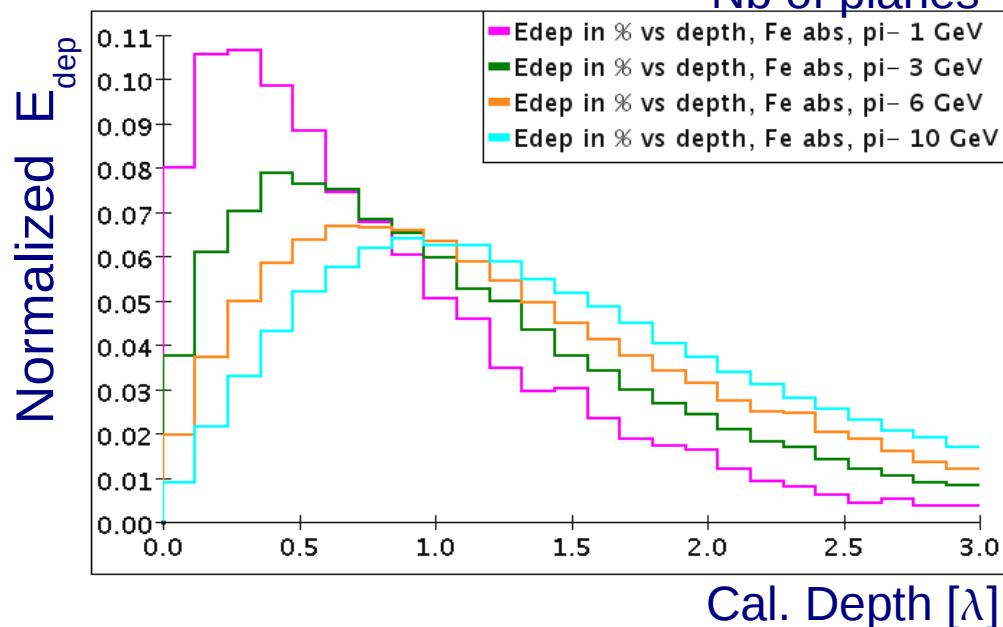
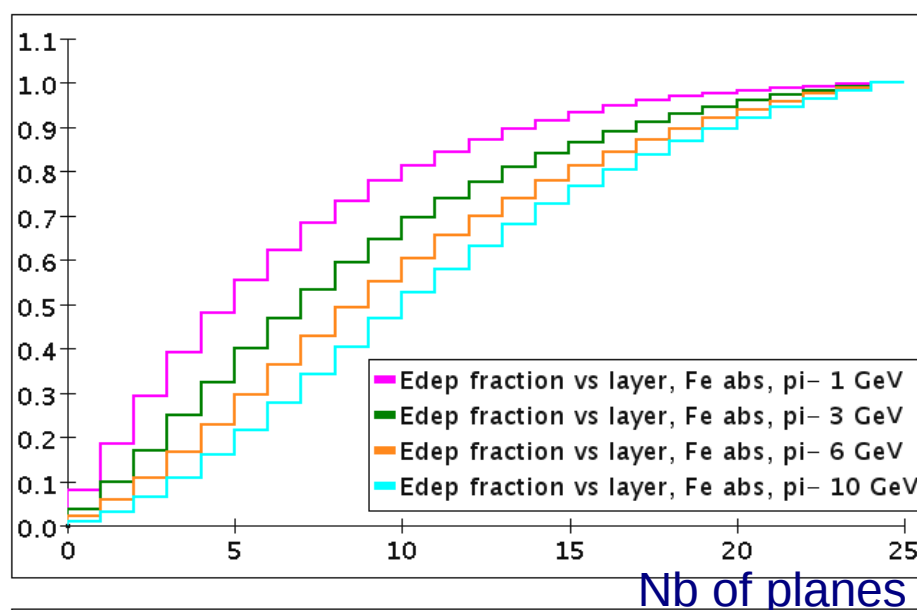
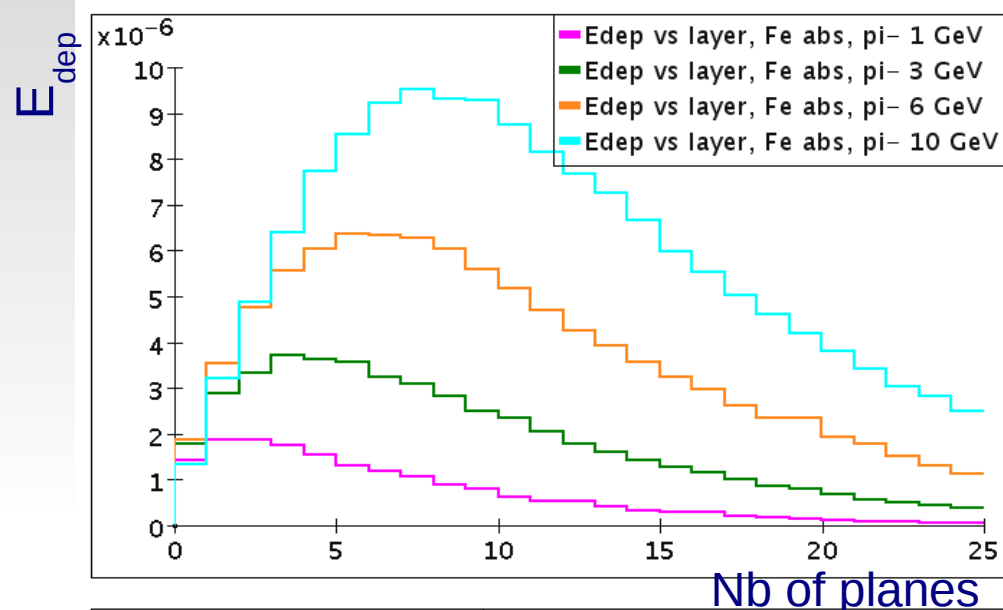
Data:

Electron and pions: 1, 3, 6, 10 GeV

(100 000 events for each energy)

Longitudinal profile: pions

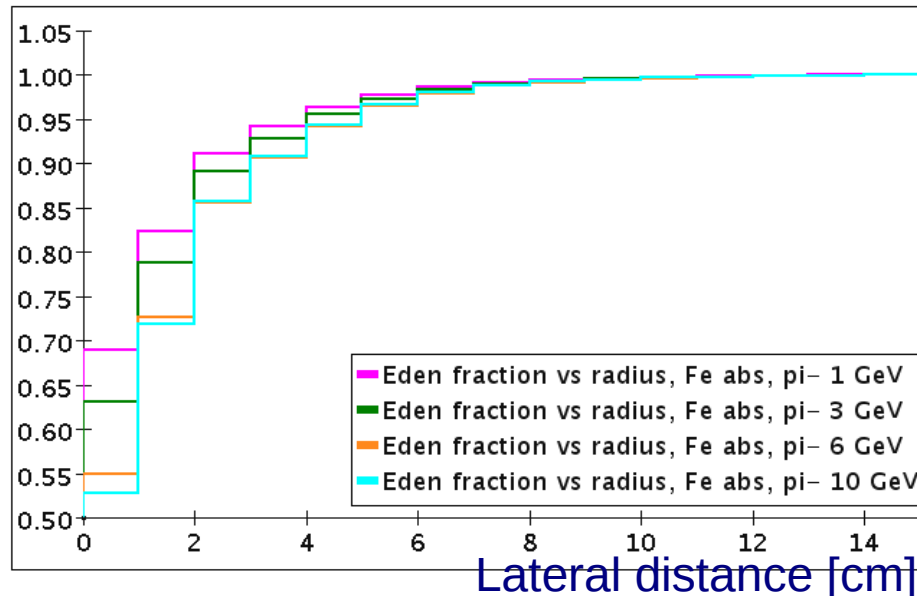
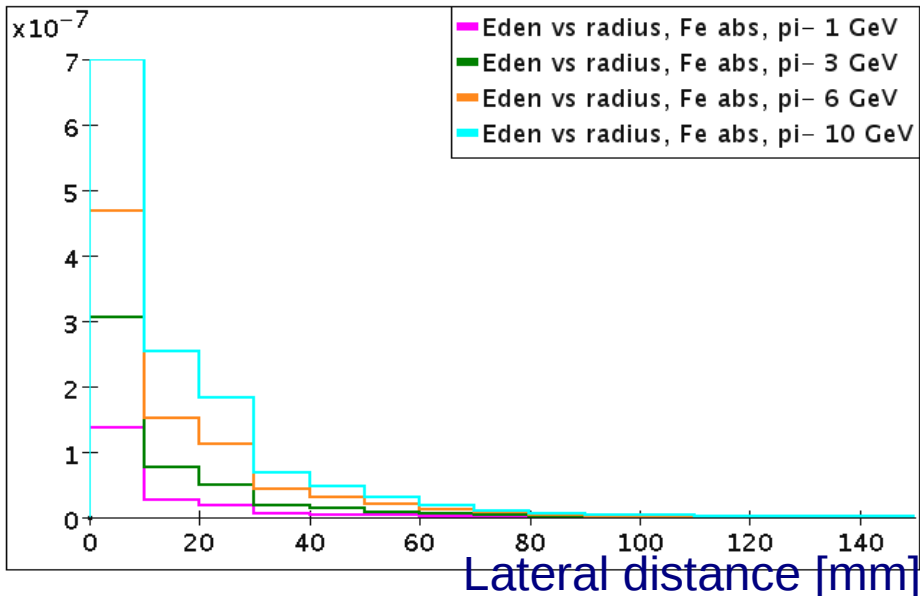
Longitudinal energy profile and energy fraction in shower (Fe abs, 3λ)



Lateral profile: pions

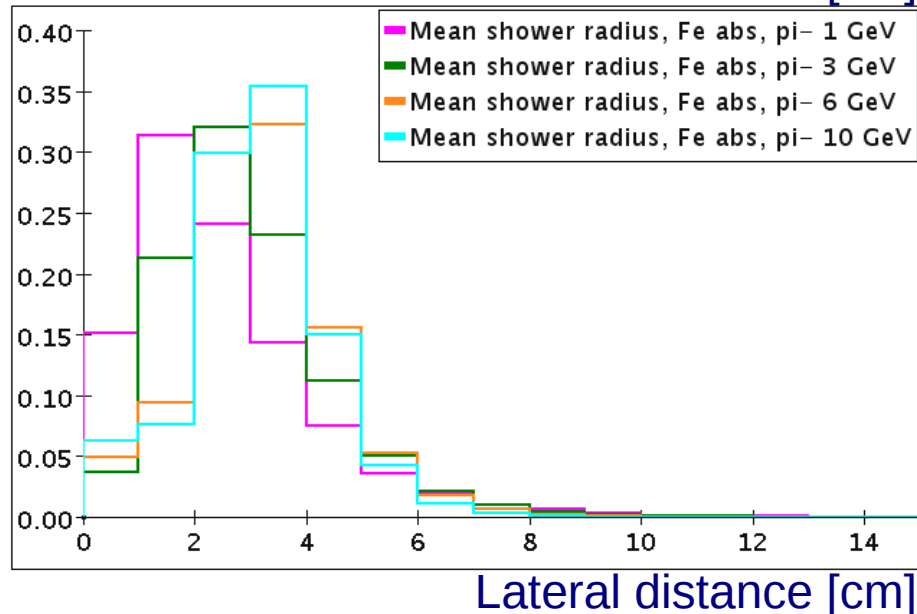
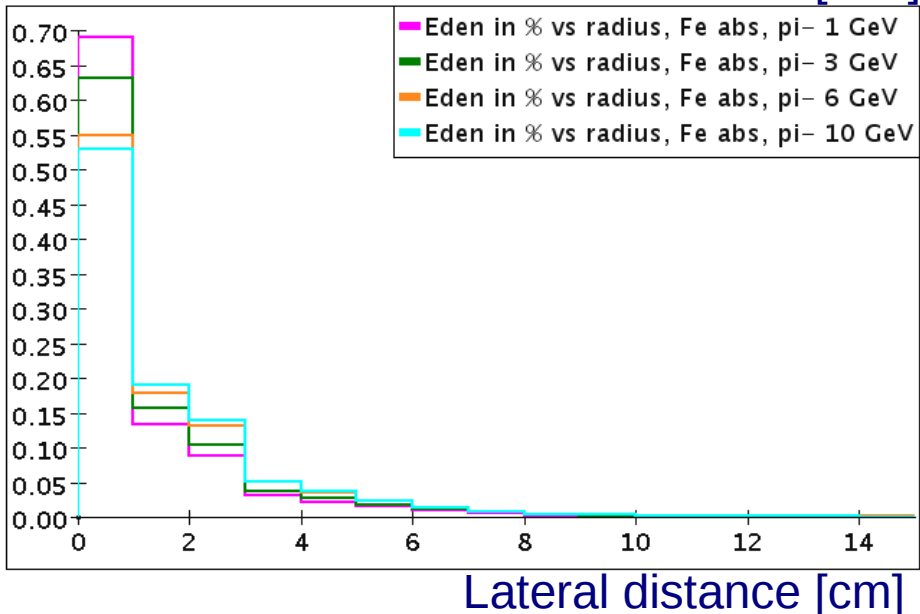
Lateral energy profile, energy fraction in shower, and mean radius

Energy density



Fraction

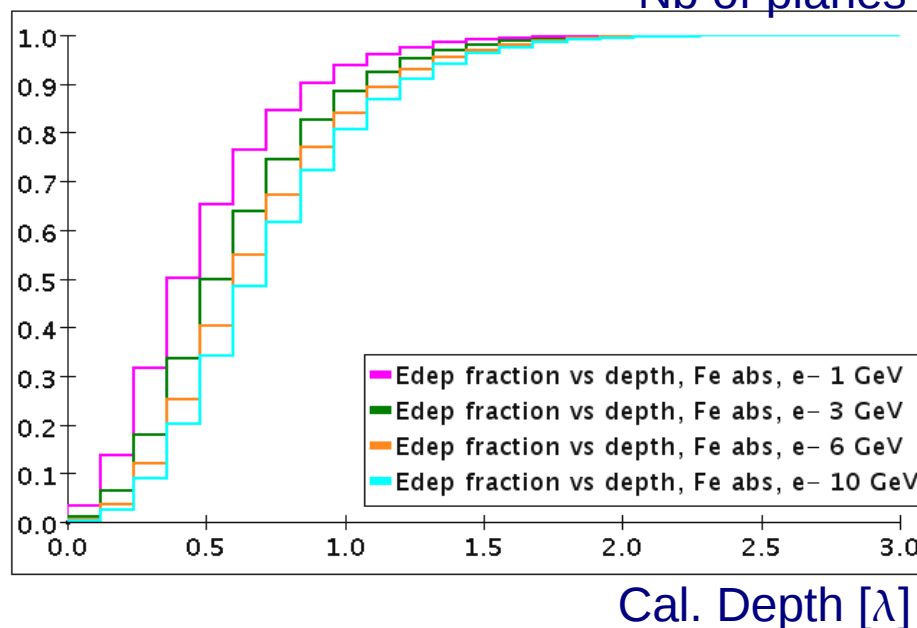
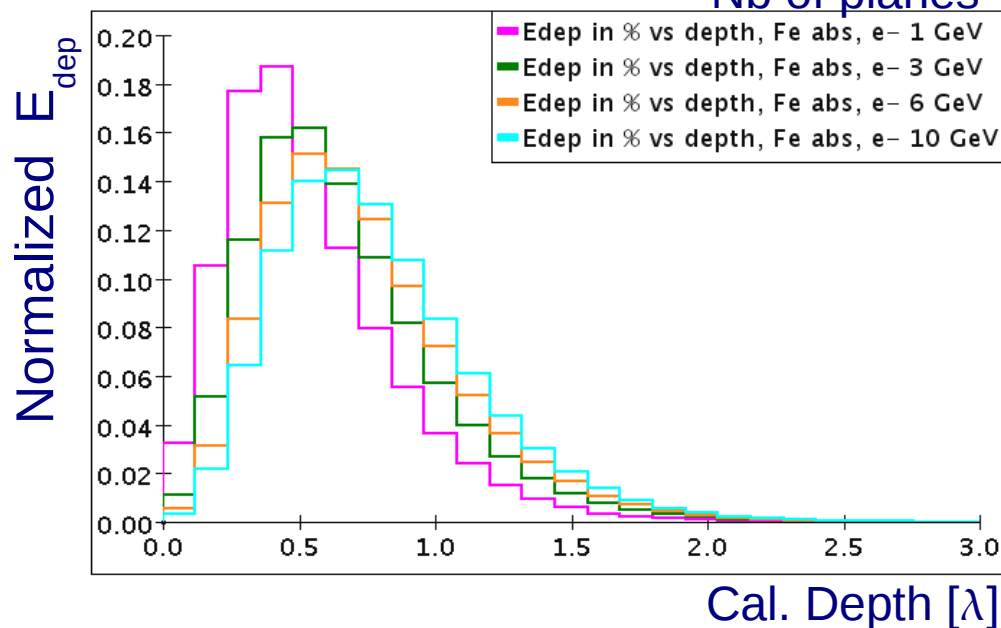
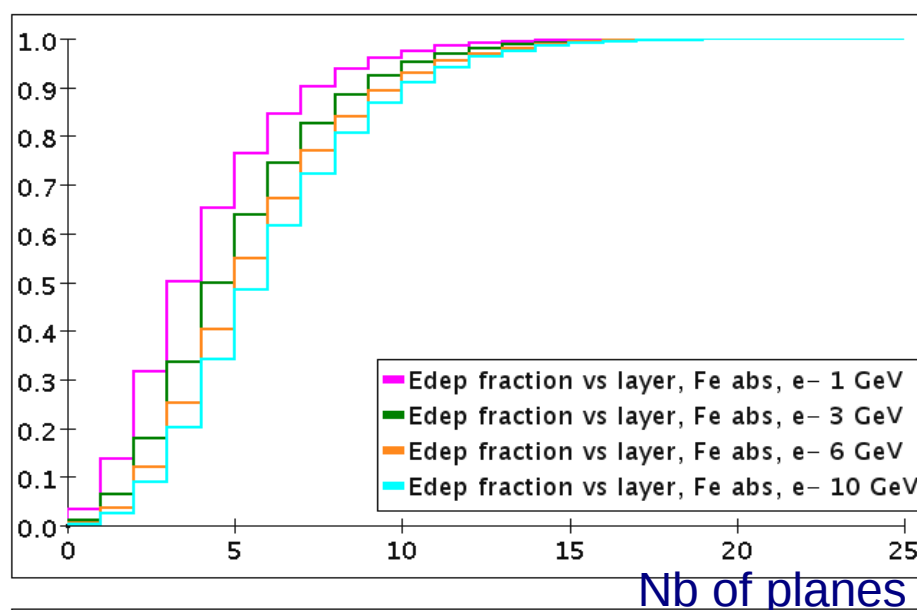
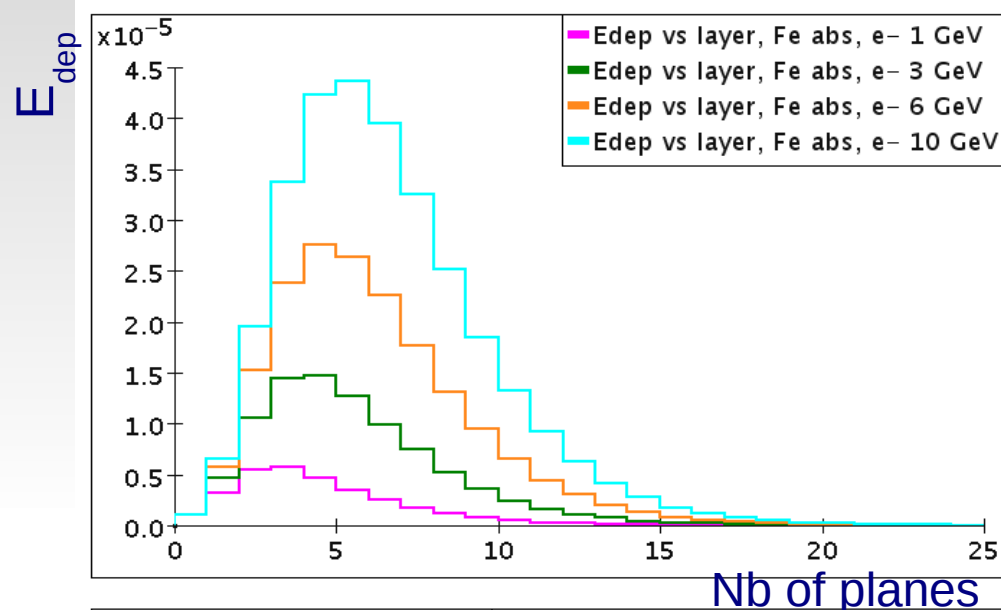
Normalized energy density



Yield [a.u.]

Longitudinal profile: electrons

Longitudinal energy profile and energy fraction in shower (Fe abs, 3λ)



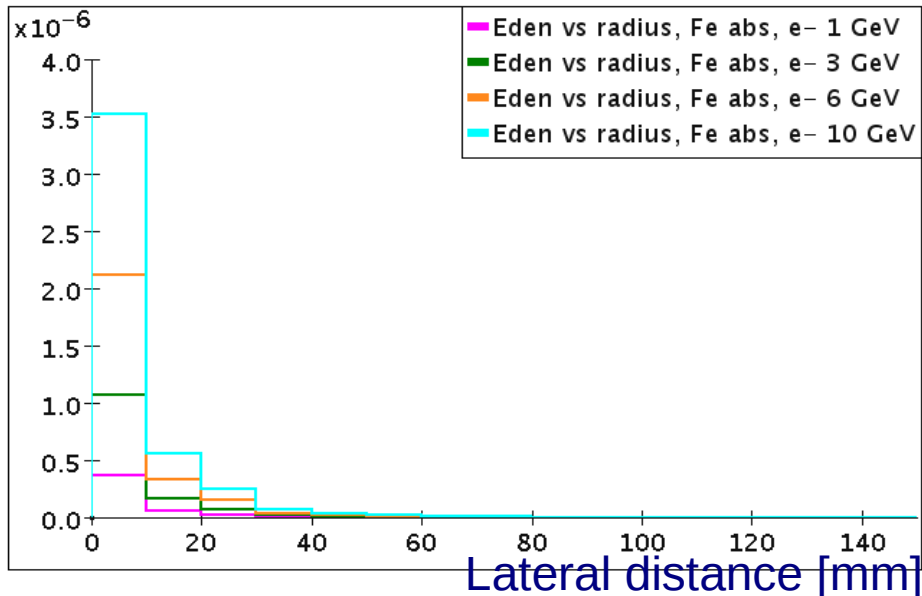
Fraction

Fraction

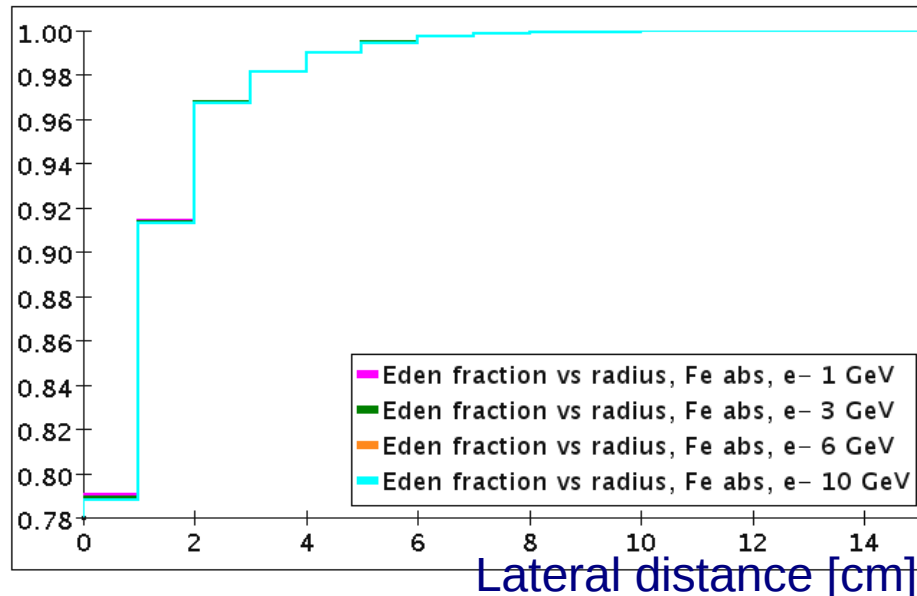
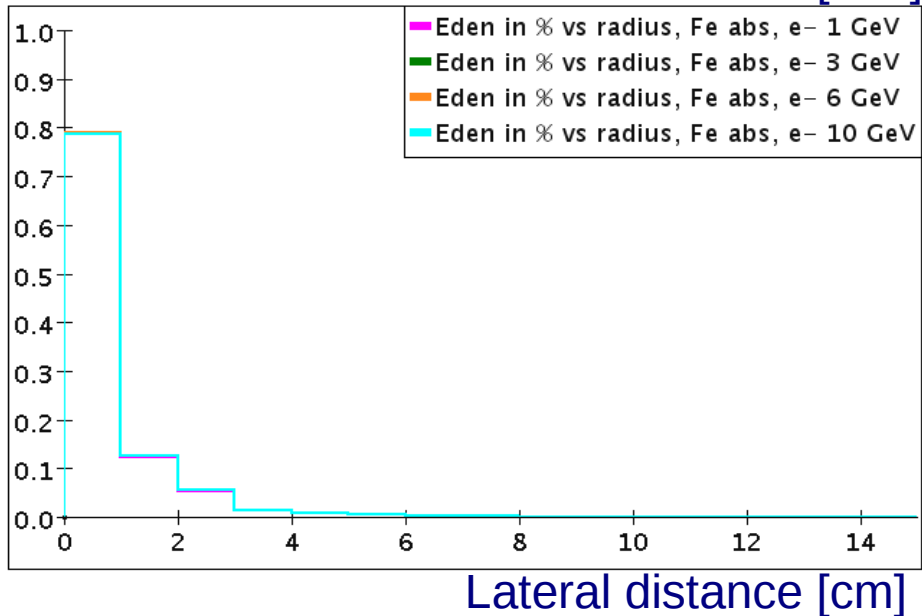
Lateral profile: electrons

Lateral energy profile, energy fraction in shower, and mean radius

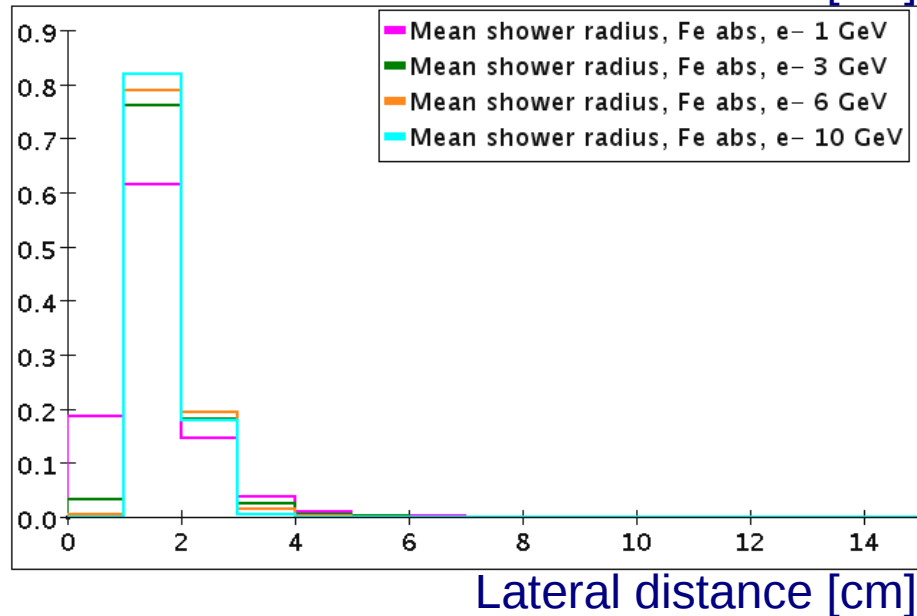
Energy density



Normalized energy density



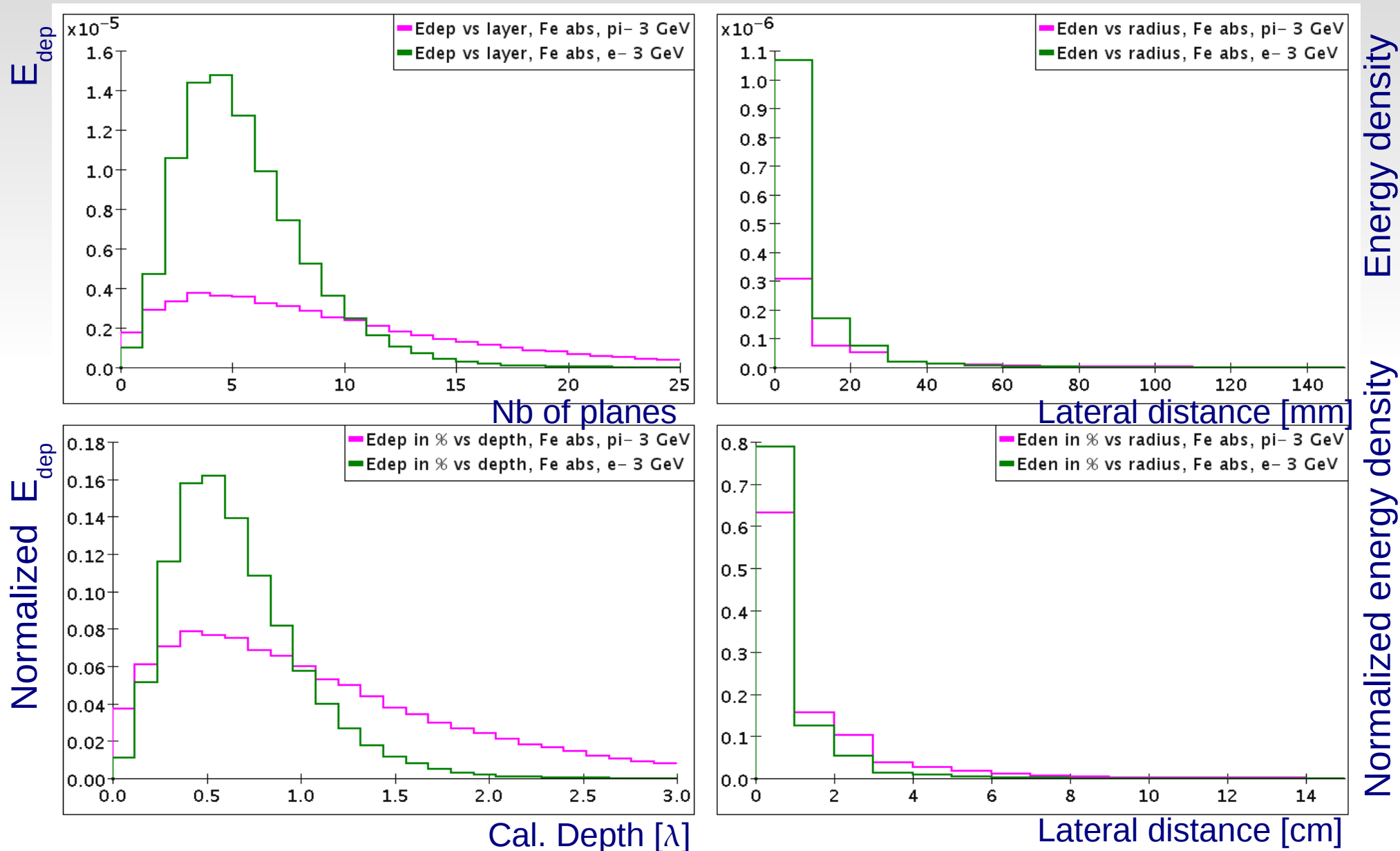
Fraction



Yield [a.u.]

Comparison: pions vs electrons

Longitudinal and lateral energy shower profiles for 3 GeV electrons and pions



Energy density

Normalized energy density

Comparison: pions vs electrons

Longitudinal and lateral energy fraction in shower for 3 GeV electrons and pions

