Optimizing Layout of a particle experiment

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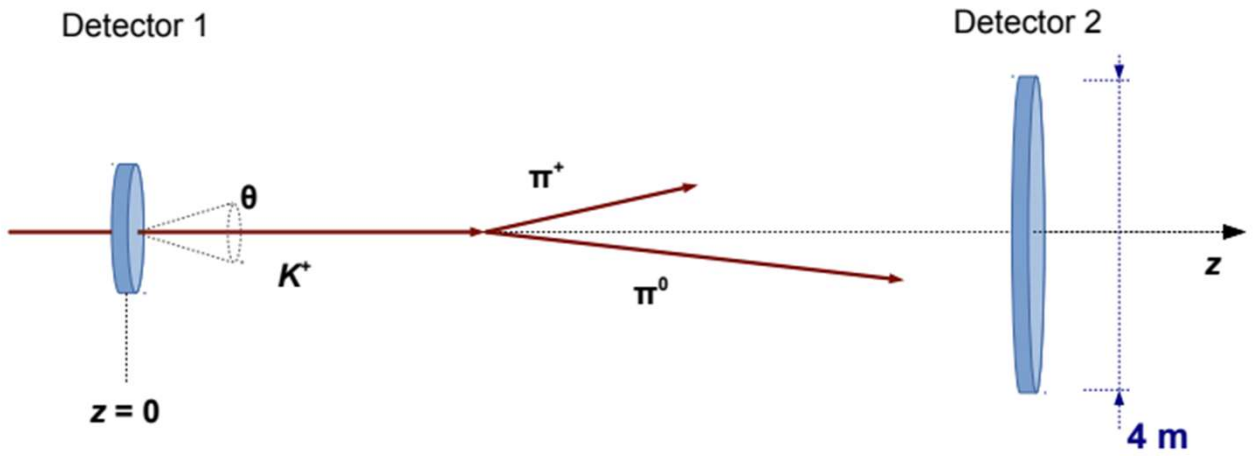
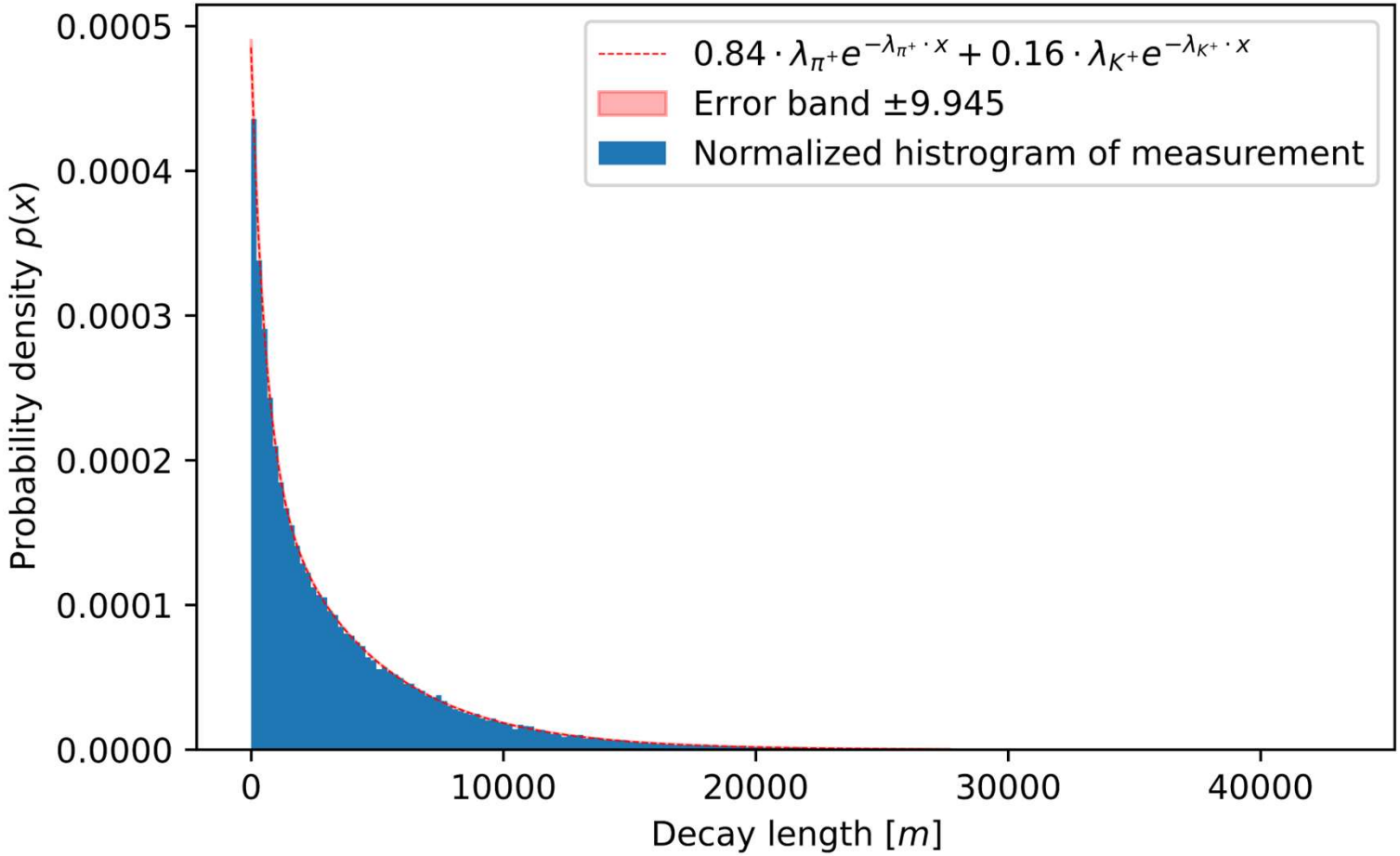
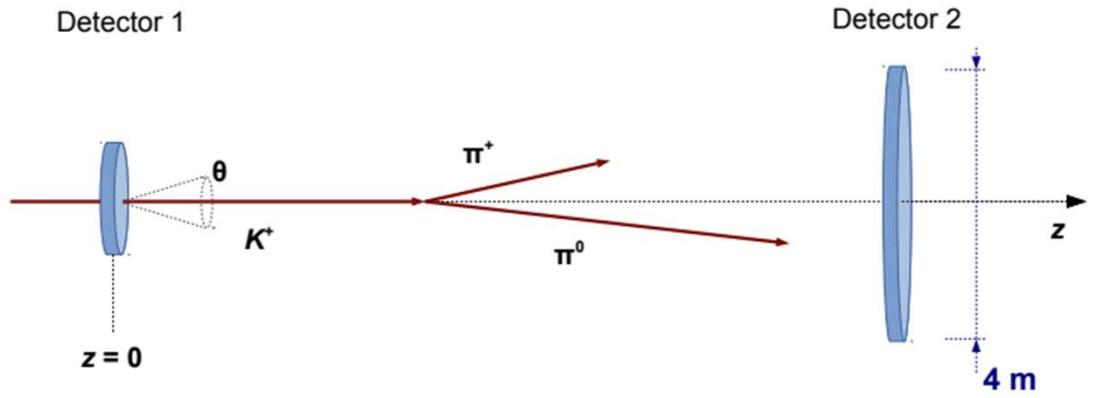
Experiment setup



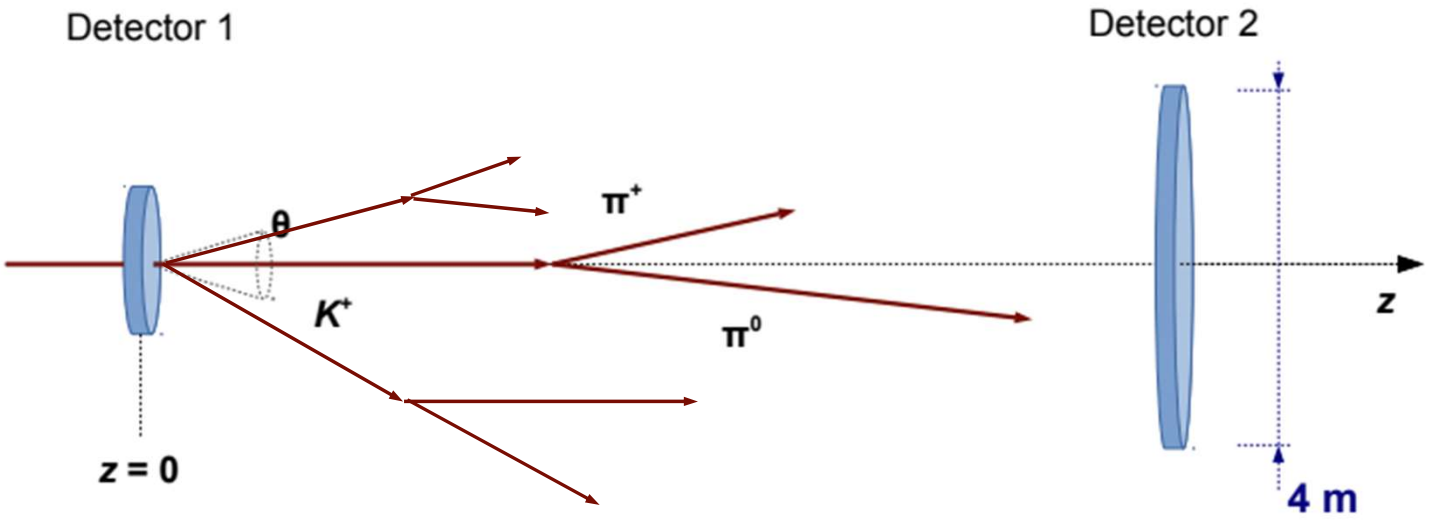
Determination of the average decay length of the K+



Infinitely narrow beam along the z axis



$$L(\theta,\varphi) = \begin{bmatrix} \gamma & \beta\gamma\hat{x} & \beta\gamma\hat{y} & \beta\gamma\hat{z} \\ \beta\gamma\hat{x} & 1+(\gamma-1)\hat{x}^2 & (\gamma-1)\hat{x}\hat{y} & (\gamma-1)\hat{x}\hat{z} \\ \beta\gamma\hat{y} & (\gamma-1)\hat{y}\hat{x} & 1+(\gamma-1)\hat{y}^2 & (\gamma-1)\hat{y}\hat{z} \\ \beta\gamma\hat{z} & (\gamma-1)\hat{z}\hat{x} & (\gamma-1)\hat{z}\hat{y} & 1+(\gamma-1)\hat{z}^2 \end{bmatrix}$$


Detector 1
Detector 2
θ
π+
K+
π0
z = 0
z
4 m