

MEASUREMENT OF THE LIFETIME OF THE BEAUTY IN THE Ω^1 SPECTROMETER BY A HIGH PRECISION VERTEX DETECTOR AND EMULSION TARGET.

Bologna (3,4), Firenze (1,2)

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A high resolution telescope coupled with the Ω^1 spectrometer will allow to find in nuclear emulsion the decay of the BB produced by the interactions of 350 GeV/c π^- .

The proposed trigger (3 charged kaons) will detect 10% of the produced $\bar{B}B$ while the background will be decreased by a factor 10^3 . Assuming $\sigma_{\bar{B}B} = 50$ nb about 70 $\bar{B}B$ will be observed.

The telescope made by 7 Area Image Sensors having a precision of $22 \mu\text{m}$ in both y and z coordinates, gives a precision of about $10 \mu\text{m}$ in the plane transverse to the beam and about $100 \mu\text{m}$ along the beam (x coordinate) in the reconstruction of events generated by FOWL with the proper background.

The fiducial volume in the emulsion will then be at the most $0.5_y \times 0.5_z \times 1_x \text{ mm}^3$. The telescope will give a further factor 5 of reduction of the background by detecting the farthest decay of the D's coming from $\bar{B}B$.

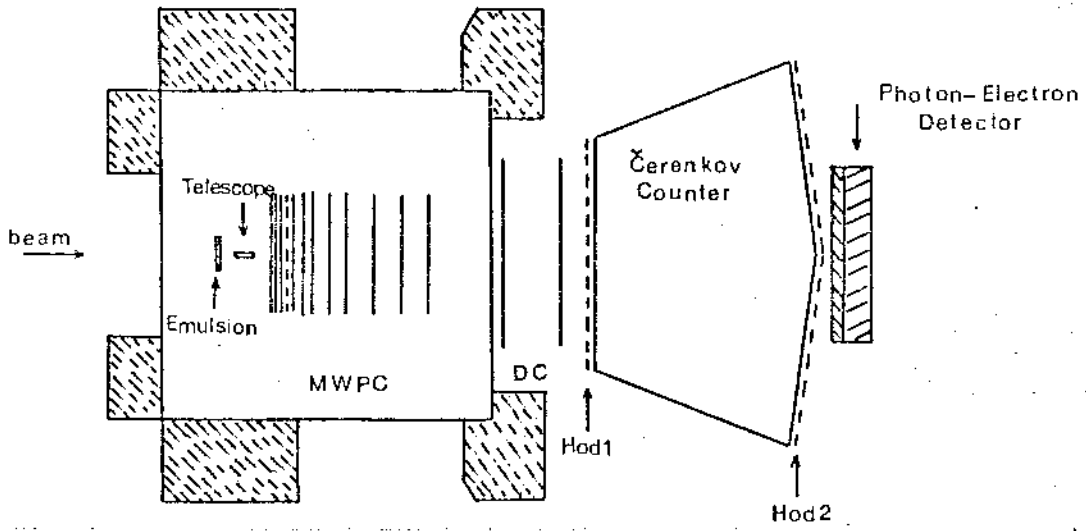
The Ω^1 spectrometer will give the kinematical reconstruction of the observed events.

A test run is required to verify the feasibility of the experiment.

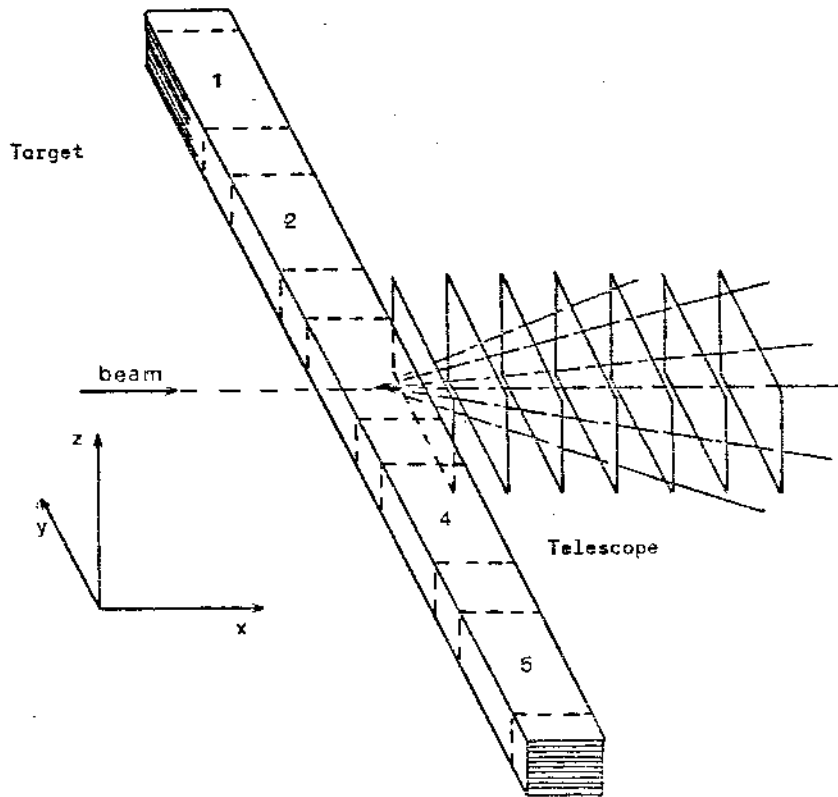
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General layout



Enlarged view of the telescope and emulsion target