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P R O P O S A L

AN EXPERIMENT FOR STUDYING BEAUTY PRODUCTION
AND LIFETIME IN THE UPGRADED Ω' SPECTROMETER

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ABSTRACT

This proposal follows a line of research already presented in previous papers, which aims to detect beauty particles decaying in emulsion and measure their lifetimes.

The principle of this proposed line is to extract the B yield from the general hadronic background by looking at the dominant decay mode:



whose branching ratio is expected to be larger than 50%. A special charm decay detector consisting in two thin silicon telescopes has been designed by the Genoa-Milan physicists. This device allows the detection of a decay by measuring the difference of charged particle multiplicities as seen in the two telescopes.

The capability of the selection method has been successfully checked in the P-137 test experiment performed in the Ω' spectrometer.

These results have been extrapolated to higher energies and higher multiplicities in order to design an experiment to be done in the improved Ω' with the aim of measuring the beauty lifetime. The expected rate is 1 beauty event in emulsion per day of data taking to be searched for amongst ~ 3000 candidates.

