

PROSPECTS FOR BEAUTY PHYSICS AT THE SSC

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ABSTRACT

The cross section for $gg \rightarrow B\bar{B}$ is relatively high at collider energies, so that a one year run at RHIC or TEV I might yield $> 10^{10}$ $B\bar{B}$ pairs, and $> 10^{12}$ pairs at the SSC. The challenge to the experimenter is to trigger on and reconstruct a significant fraction of this sample. Detectors are being proposed which make extensive use of silicon vertexing, VLSI readout, and massive online numerical processing with the goal of maintaining a 1% efficiency for few-body decays to all-charged final states. If achieved at the SSC for $\mathcal{L} = 10^{32}$ $\text{cm}^{-2}\text{sec}^{-1}$, this would be equivalent to an $e^+e^- B$ factory operating at $\mathcal{L} = 10^{36}$ $\text{cm}^{-2}\text{sec}^{-1}$ and 100% reconstruction efficiency. Even at RHIC or TEV I with 10^8 reconstructible B 's, the strongest signals for CP violation in the $B\bar{B}$ system would be accessible.

***B* PHYSICS AT THE VANCOUVER TRACKING WORKSHOP**

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