## Optimization of Integrated Luminosity of the Fermilab Tevatron Collider

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We present the strategy which has been used recently to optimize integrated luminosity at the Fermilab Tevatron proton-antiproton collider. We use a relatively simple model where we keep the proton intensity fixed, use parameters from fits to the luminosity decay of recent stores as a function of initial antiproton intensity (stash size), and vary the stash size to optimize the integrated luminosity per week. The model assumes a fixed rate of antiproton production, that a store is terminated as soon as the target stash size for the next store is reached, and that the only downtime is due to store turn-around time. An optimal range of stash sizes is predicted. Since the start of Tevatron operations based on this procedure, we have seen an improvement of approximately 35% in integrated luminosity. Other recent operational improvements have been achieved by decreasing the shot-setup time and by reducing beam-beam effects by making the proton and antiproton brightnesses more compatible, for example by scraping protons to smaller emittances.

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