Overview of the C0 IR

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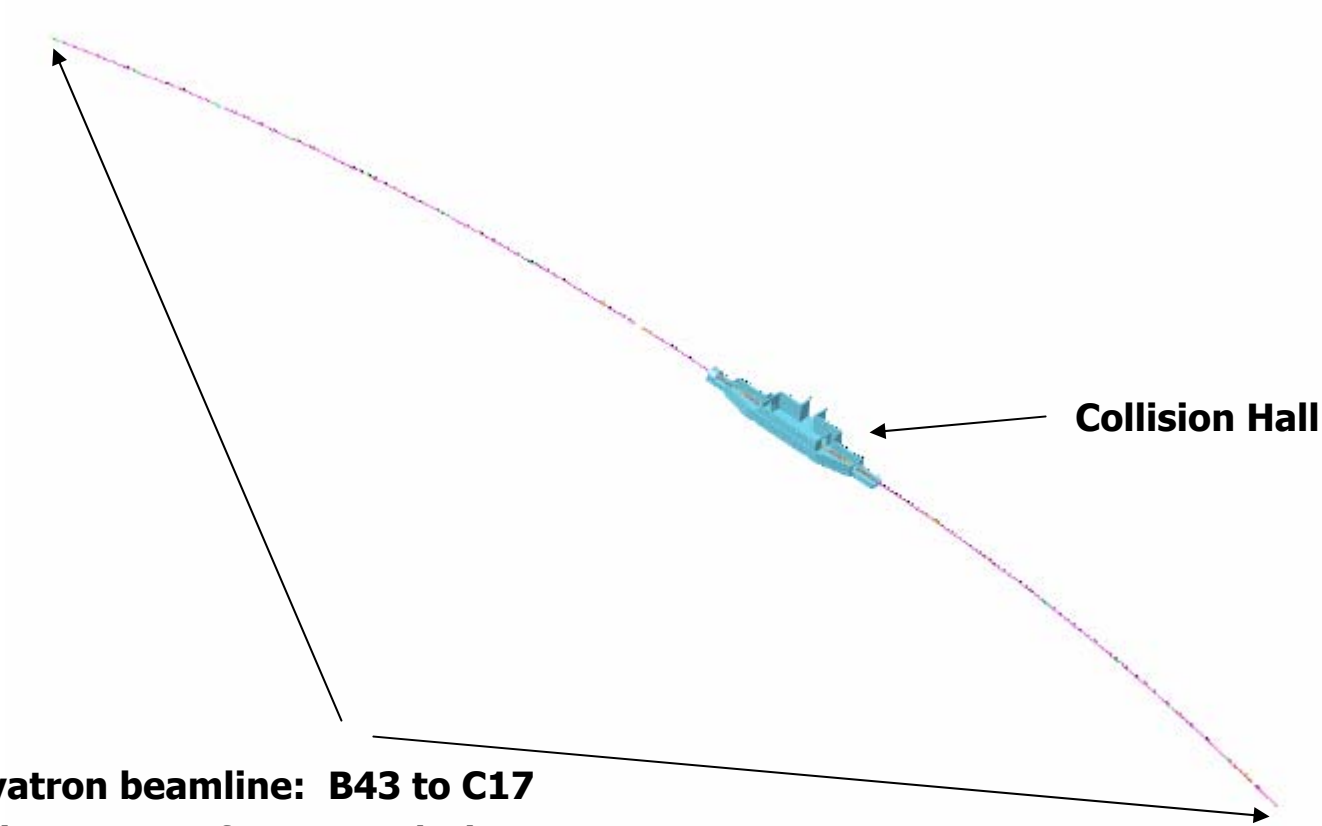
C0 IR from a Distance



Tevatron beamline: B43 to C17

(445 m, 7% of Tevatron Ring)

+ remove 4 magnets @A4/B1

+ move collimators

+ modify feeddown corrector circuits

- C0 collision hall (after 2005)

Design Fundamentals

- $\beta^* = 35$ cm
- Lattice design utilizes asymmetric triplet on either side of IR
- C0 insert is matched to existing Tevatron at all stages of operation; tune is increased by 1 unit in each plane
- High luminosity collisions possible at B0/D0 and C0, but not simultaneously (ie., alternating stores)
- Simultaneous low luminosity collisions at B0/D0 and C0 probably possible but not part of this baseline design
- Design optimized for 36x36 operation, but 132 nsec operation is not precluded
- ±12m "keep away" distance maintained from the C0 IP (compared to ±7m for B0/D0 IP's)
- Well-integrated into current Tevatron infrastructure wherever possible, without compromising design goals.

Scope of Project

- **Magnets - new LHC-style LB quads and new correction magnets (spools) (~65% of total cost of project)**
- **Electrostatic separators**
- **Power Supplies for new magnets and separators**
- **Cryogenics – modifications and new elements**
- **Quench Protection System, controls and instrumentation modifications**
- **Conversion of C0 to a "normal" straight section (2005 shutdown)**
- **Installation (mostly in 2009 shutdown) and commissioning**

2009 Installation Overview

Tunnel work:

- **Move 31 Tevatron dipoles**
- **Remove 26 Tevatron quads/spools (→ storage)**
- **Install 29 quads and spools (20 new, 9 used)**
- **Install 3 cryogenic bypasses**
- **Move/install 6 electrostatic separators**
- **Install 2 cryogenic turnaround/power lead cans**
- **Install 2 collimators**
- **Install 2 shield walls**
- **Miscellanea – LCW, cabling, cryo headers, buswork, …**

Project Status

- **CDR is written (~90% complete)**
- **Lattice design is mature (no big change since 2/01)**
- **Major technical choices made (quads, spools, corrector, HTS leads, …)**
- **Progress on technical details being made (magnet design)**
- **Calculations continuing (beam halo, feeddown circuits, …)**
- **WBS exists; cost and schedule estimates being refined**
- **General layouts being made; system integration under examination**