CDF/D0/AD Luminosity Task Force meeting

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Updated history on CDF/D0 luminosity ratio and recent changes in the Supertable to accommodate the new lattice

November 1, 2005

AD measurements of β^*

- As discussed by A. Valishev at AEM of 08/29/05, using differential orbit measurements, an orbit response matrix fit and the new Tevatron BPM system allows for the determination of β^* at an accuracy of ~5% (compare to ~15% before).

	β^*_x	β^*_y	
CDF	32.0	37.1	±5%
D0	35.8	40.0	±5%

Beam-beam effects can reduce β^* by about 10%.

AD β^* expectation for the 28 cm lattice

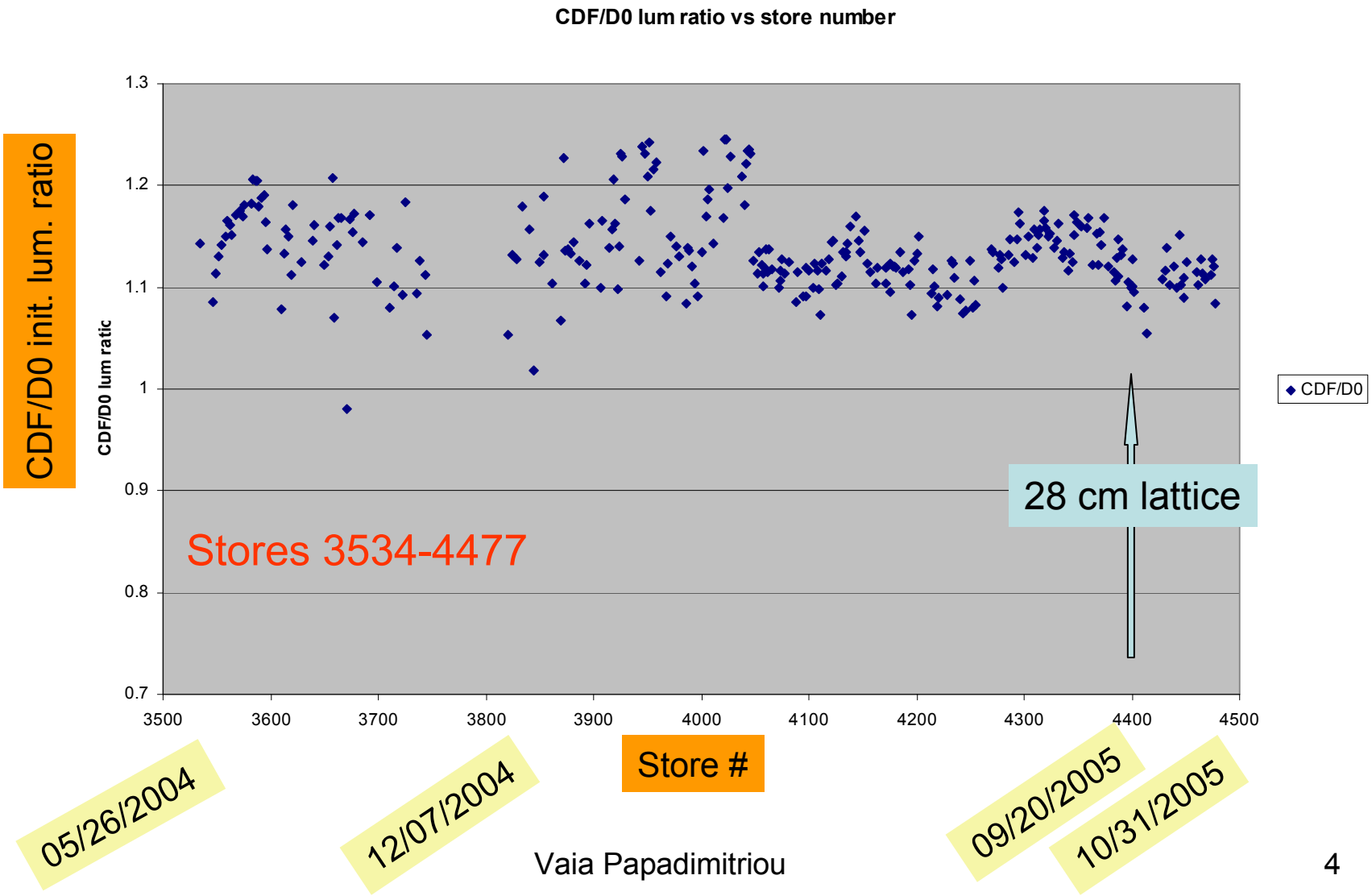
At the minimum of the waist

	β^*_x	β^*_y	
CDF	30.3	29.1	$\pm 5\%$
D0	29.2	28.2	$\pm 5\%$

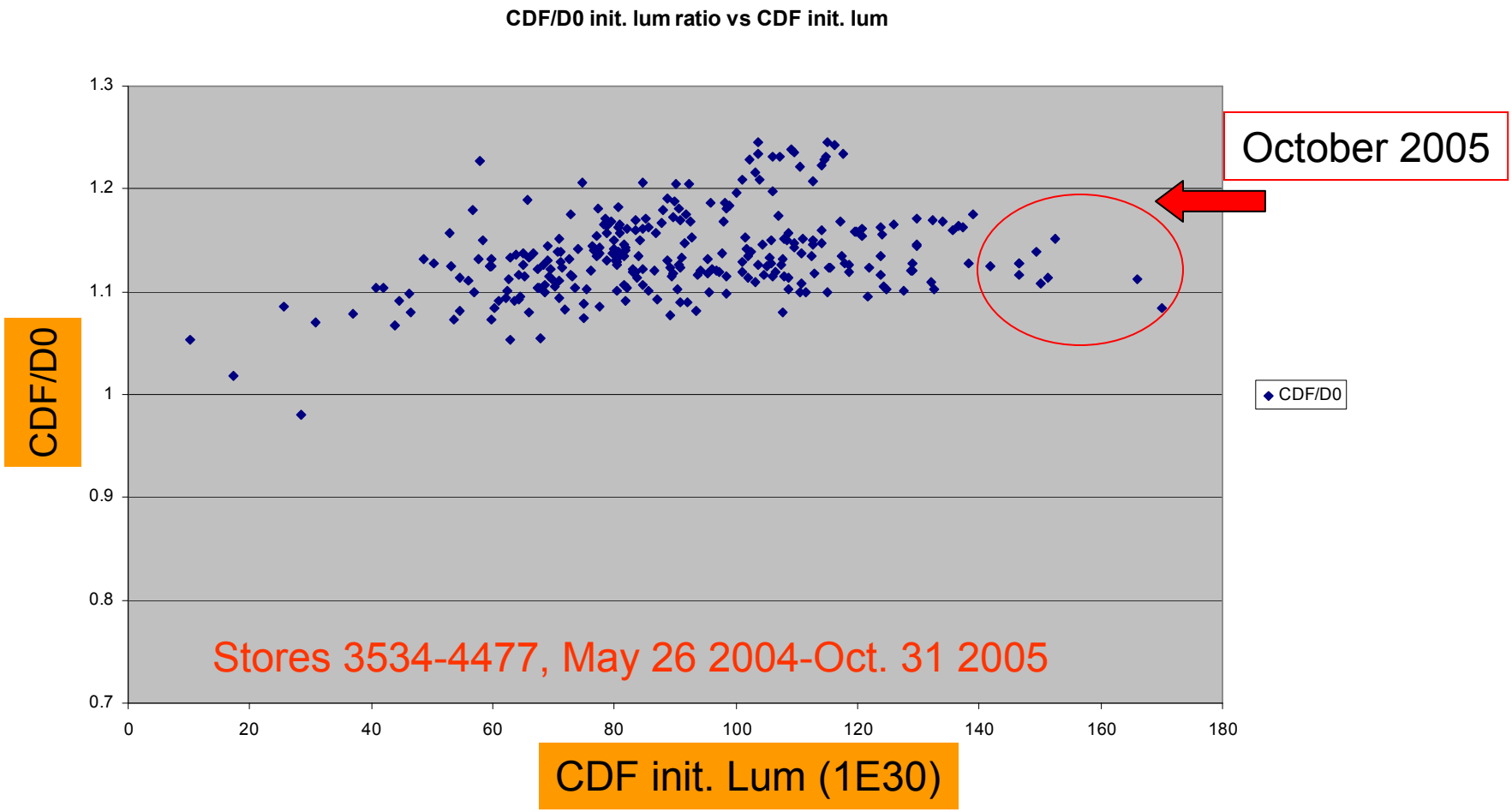
Currently in database – at the reference IP

	β^*_x	β^*_y
CDF	31.47	31.51
D0	33.42	32.51

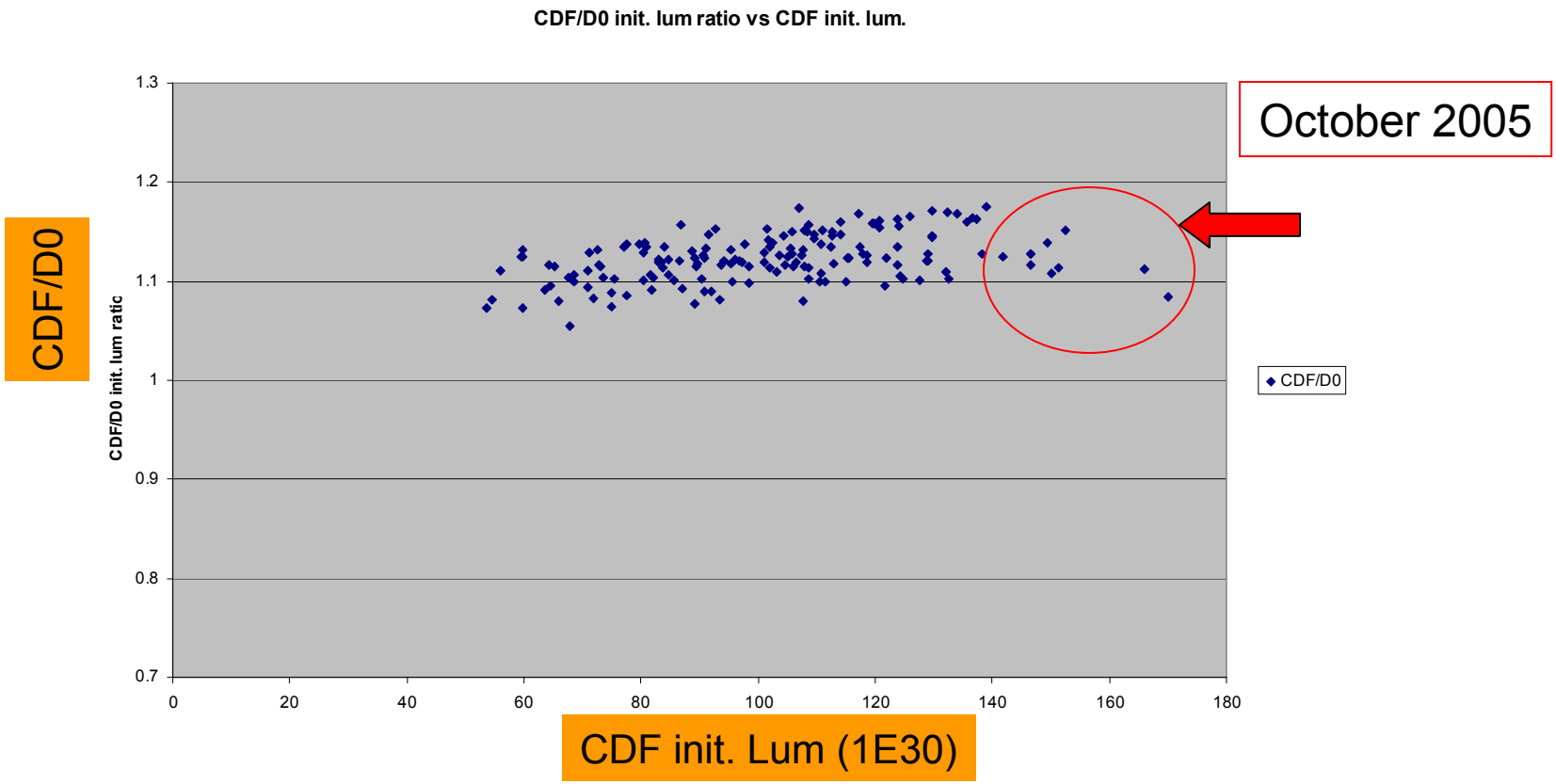
CDF/D0 init. lum. vs store



CDF/D0 init. lum vs CDF init. lum



CDF/D0 init. lum vs CDF init. lum



Stores 4048-4477, 03/18/05-10/31/05

Supertable changes

- Hourglass factors recomputed using the new beta*'s. Effective emittances recomputed as well (reference IP values were used).
- Three new columns in Supertable and a few more redefined. Separate columns now for CDF and D0.
- Expected luminosities recomputed to 1st order. Need further improvements to be really correct with the new lattice.