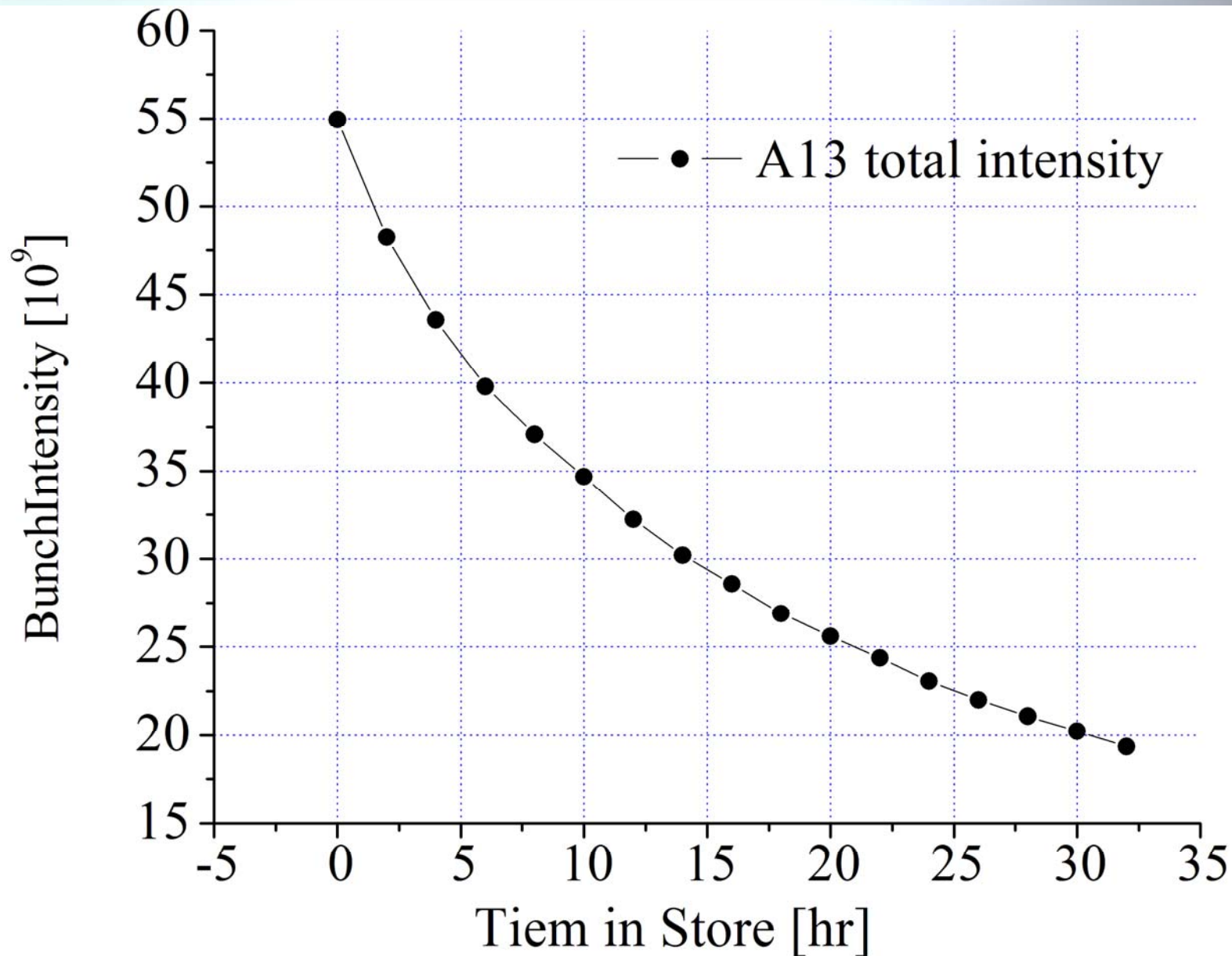




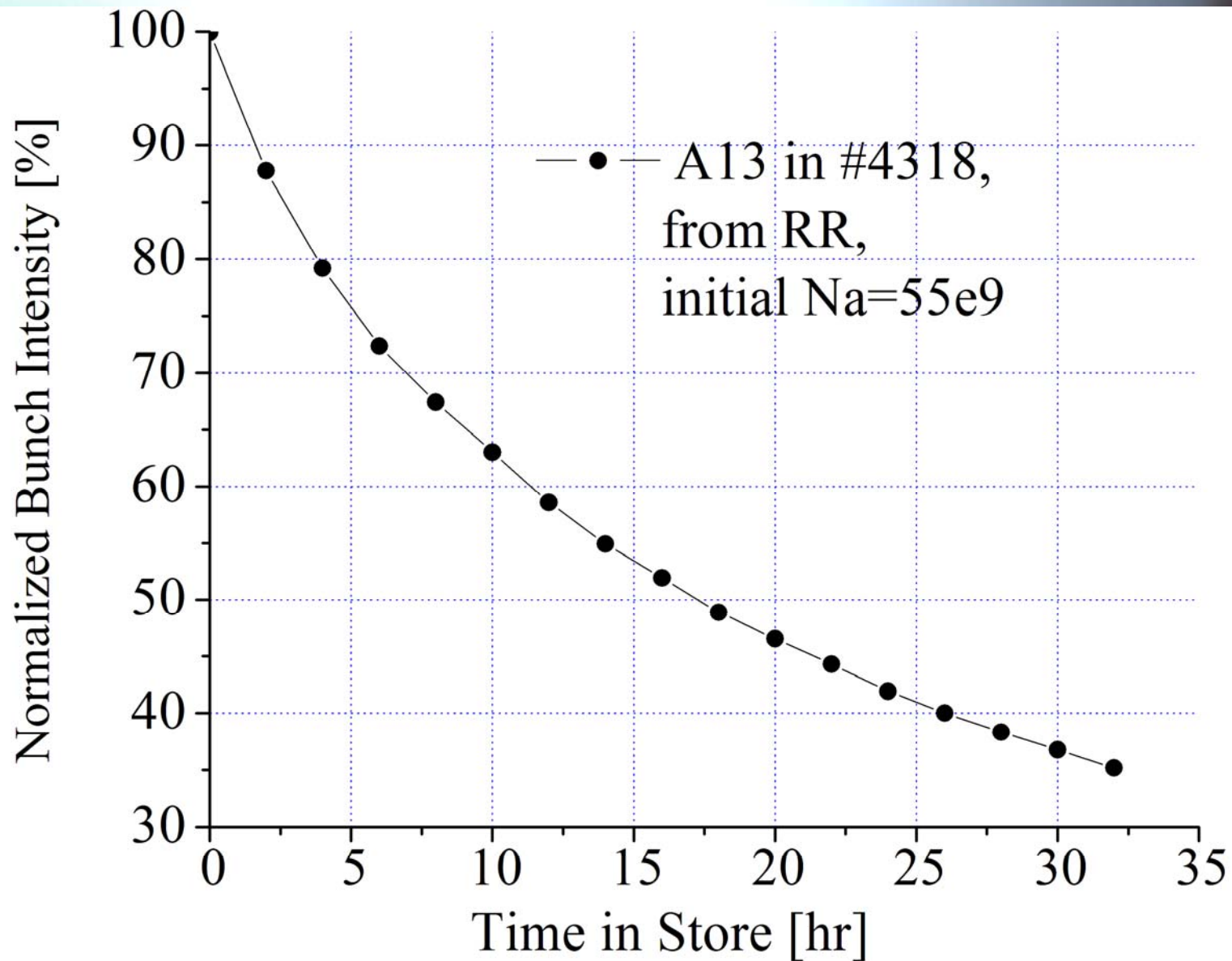
Recycling Tevatron Pbars

V.Shiltsev

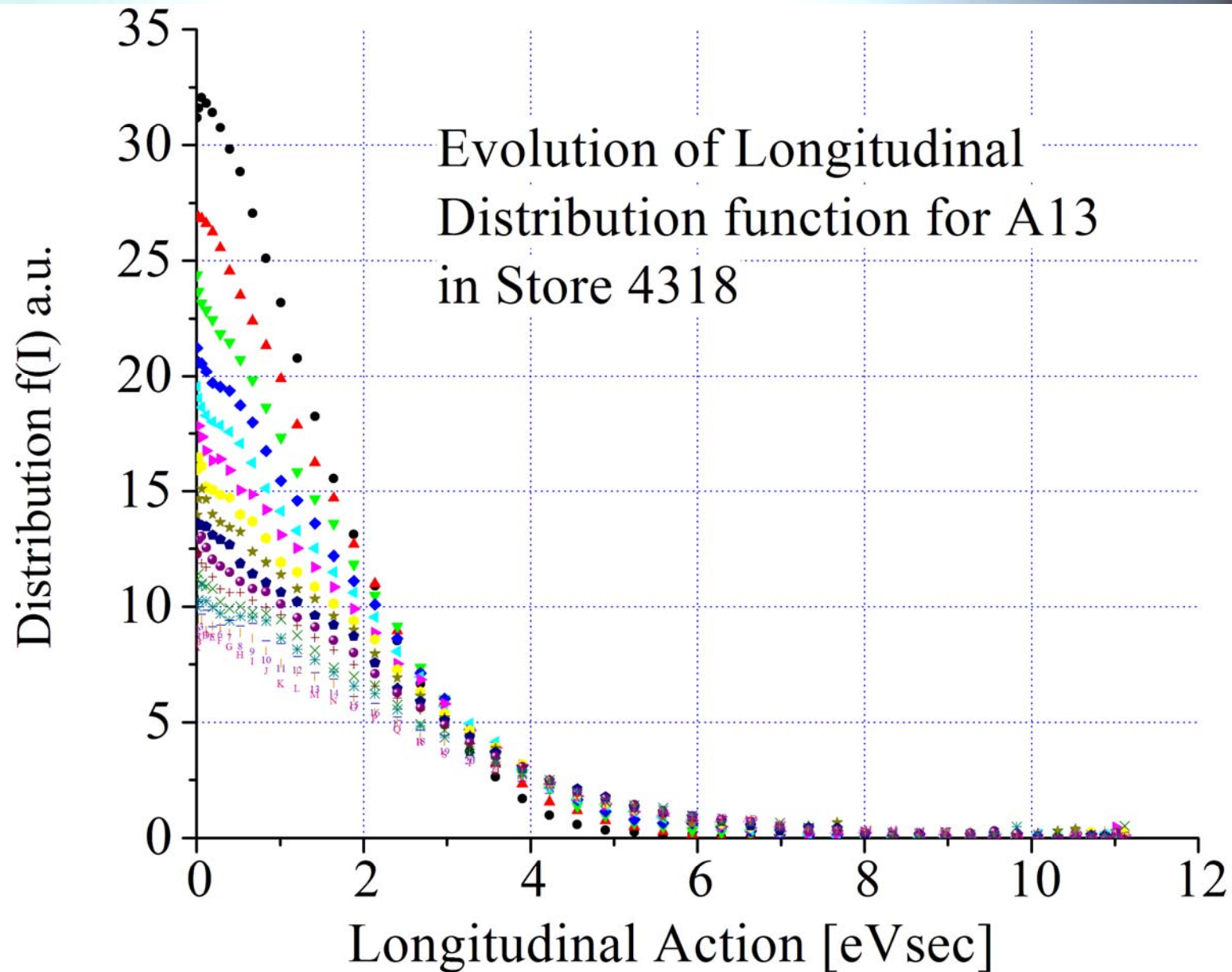
Pbars in the Tevatron: store 4318



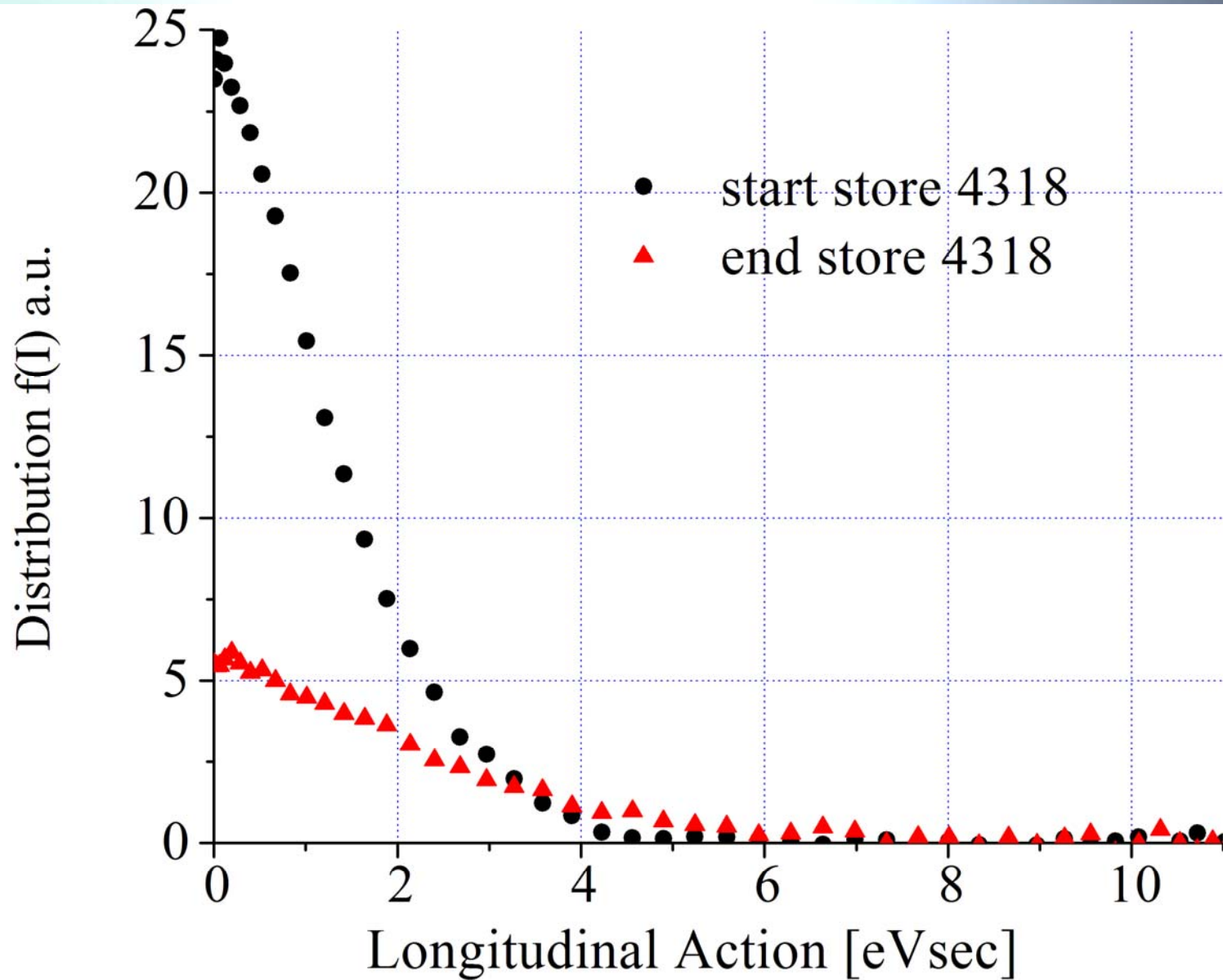
Pbars in the Tevatron: A13 % Survived



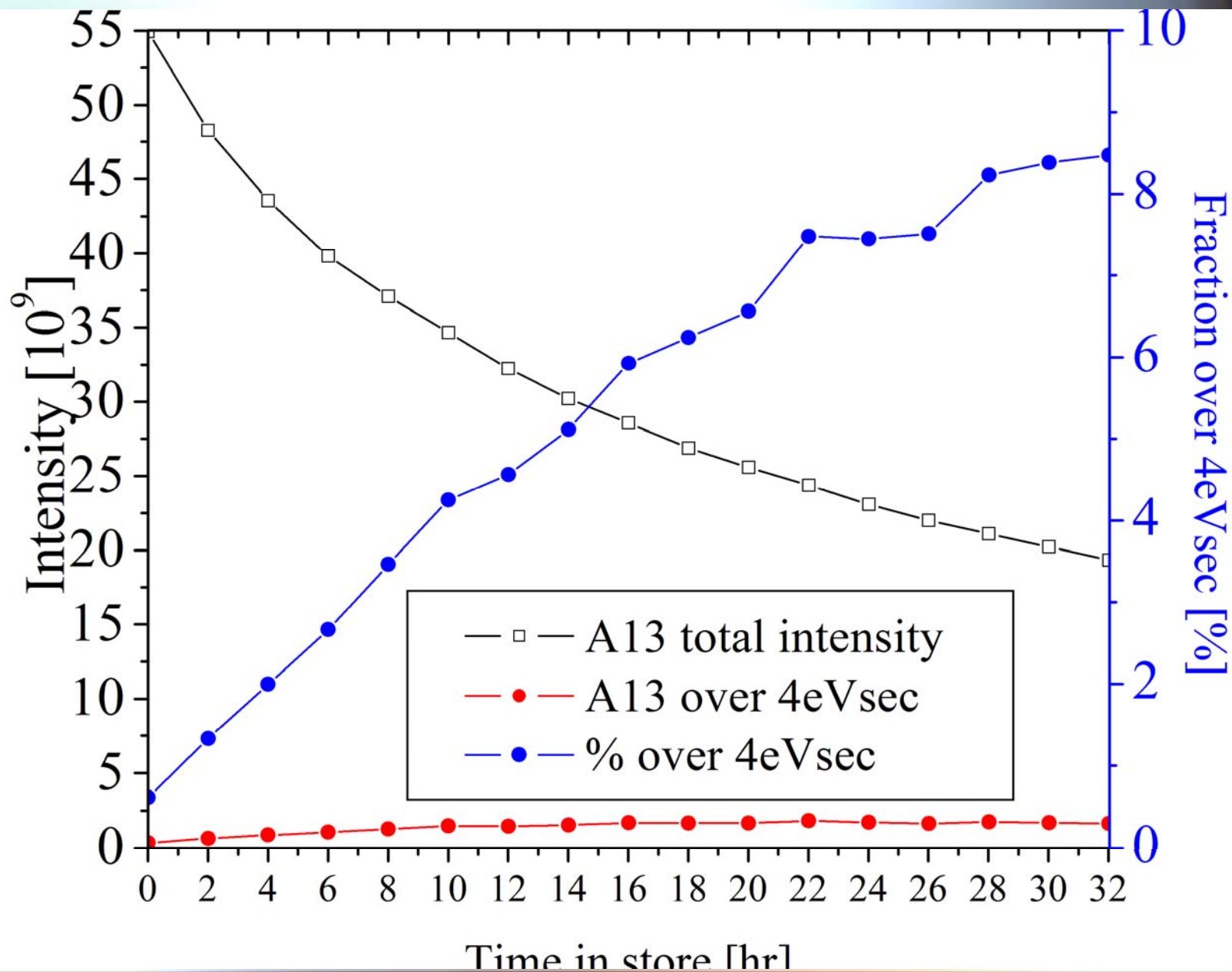
Pbars in the Tevatron: Evolution



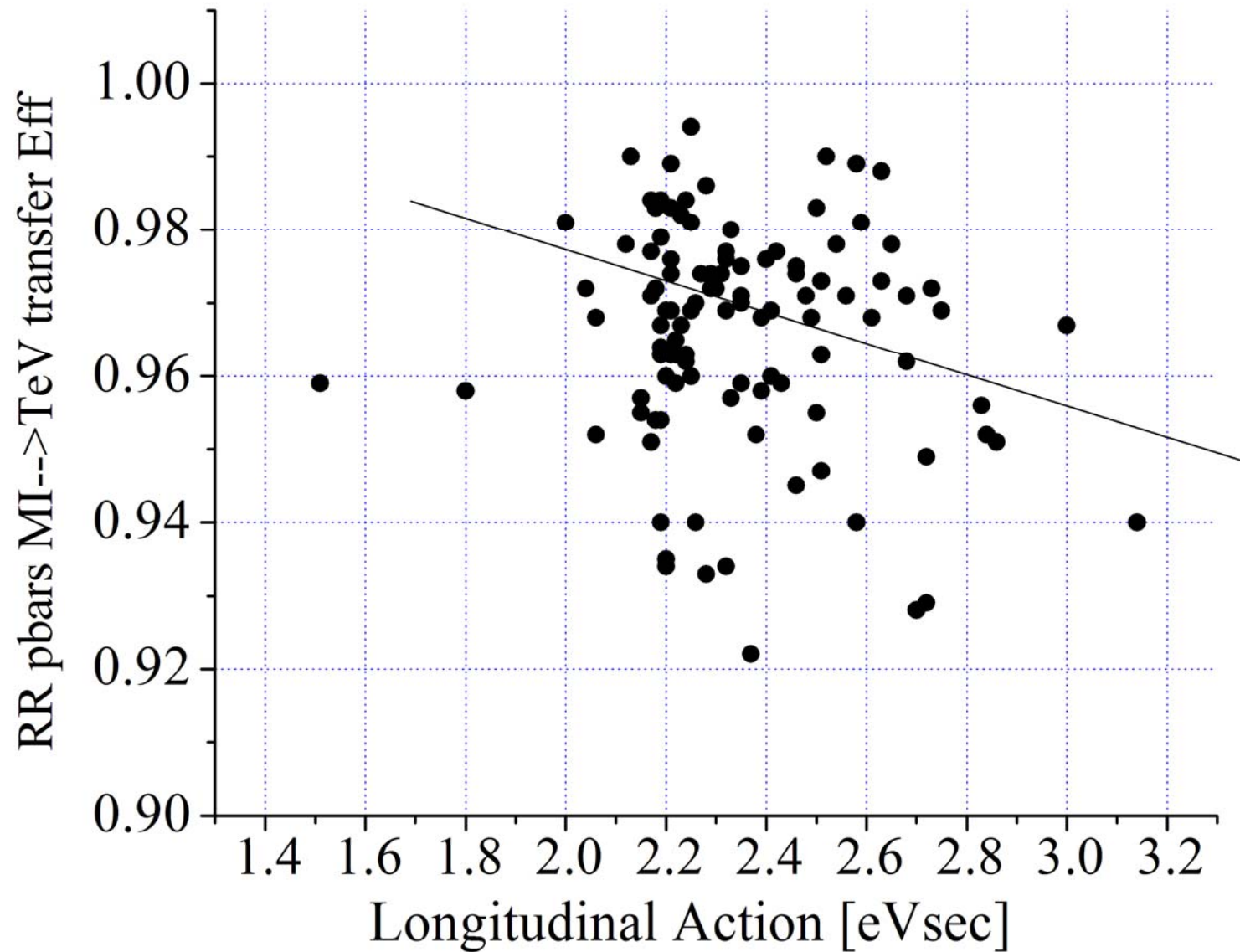
Pbars in the Tevatron: EoS



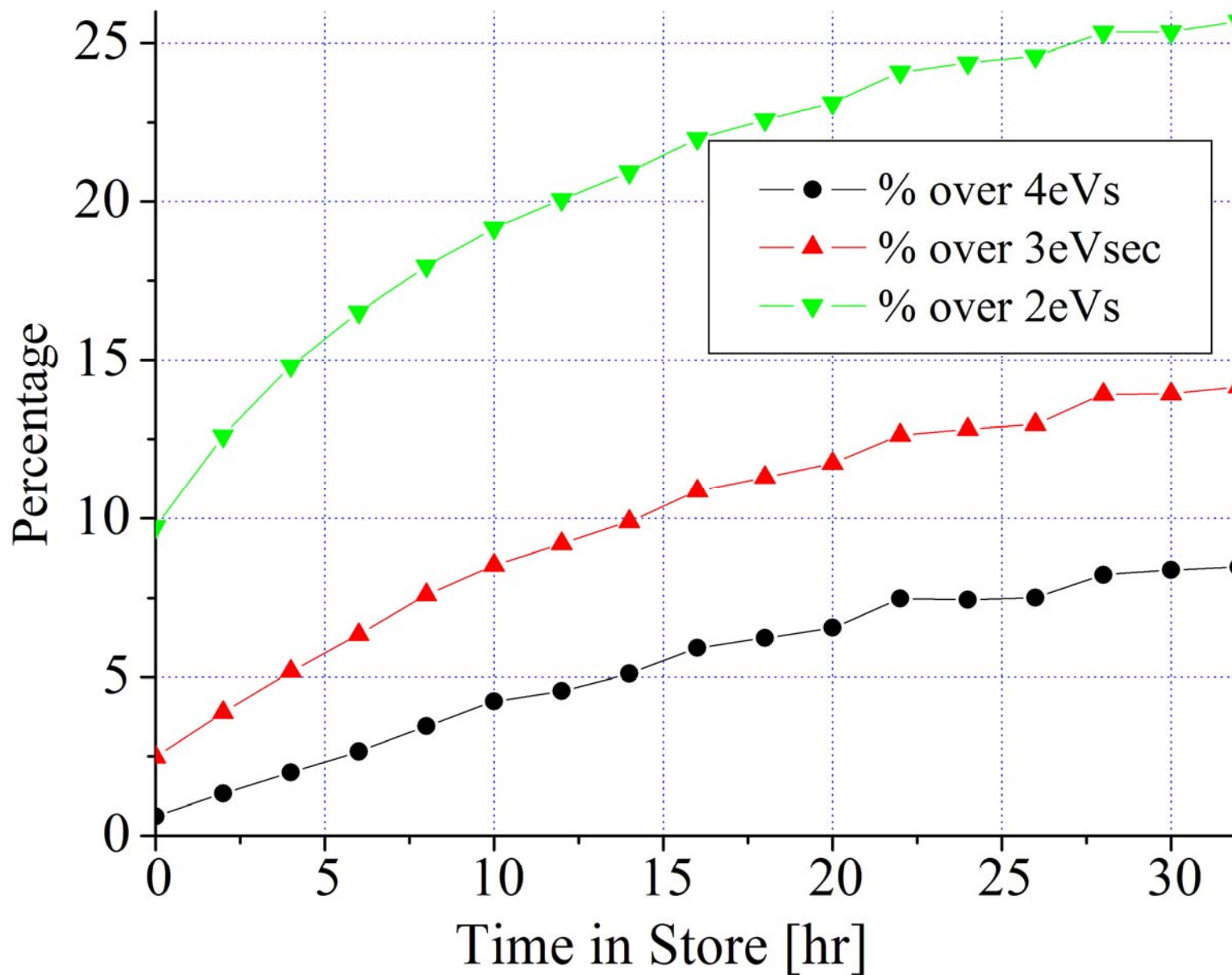
Pbars in the Tevatron: store 4318



SuperTable: MI→TeV loss on transfer



Pbars in the Tevatron: store 4318



Let's Do Some Math

Store Length	20 hrs	30 hrs
Left in Tev	46% x	37% x
Deceler Eff	-(5-8)%	-(7-10)%
Tev→MI Eff	-(4-6)%	-(4-6)%
MI Deceler Eff	-(5-10)%	-(5-10)%
MI→RR Eff	-(5-15)%	-(10-20)%
Trsf Time 2/3 hr	-(1-3)%	-(2-4)%
Gain in RR Na	+(30-37)%	+(22-27)%
Gain in L_peak	+(24-30)%	+(18-22)%
Gain in L_integr	+(19-24)%	+(14-18)%

Comments/Issues (1)

- TM-1991 Recycling Efficiency estimates too optimistic
- Still, 15-25% gain in the integrated luminosity seems to be possible
- Things not taken into account: somewhat faster IBS in higher intensity pbar bunches and (in) frequent unintentional ends of stores (20%) will lower integrated luminosity gain expectations to (12-20)%
- Transverse Emittances of about max 15-18 μm should not pose big problems (true?)

Comments/Issues (2)

- **proton removal**
 - in 5-10 min (fastest so far 30 min – CY Tan)
 - better shielding at E0 and A48 (Nikolai, Dean)
 - stabilize orbit vibrations (Vahid's method)
 - diffuse p-beam (not pbars!) – AC dipole (AJ), TEL (VS)
- **B2 on the ramp down and backporch**
 - tested, works fine (Jerry)
- **MI ramp down IBS**
 - no big problems? (Ioanis, C.Bhat)
 - 53MHz (150→25) 2.5MHz (25→8 GeV) in TM-1991
- **Long and Transv apertures in transfer lines**
 - no big surprises expected, to be explored with SDA
- **Sequencer/Controls/Synchronization ... is needed**
- **TeV IPMs may suffer ... move to C0**