



Remembering Alvin: Alvin and the Tevatron

**Valeri Lebedev
Accelerator Division**

"Alvin Tollestrup:
A Life in Science"

Fermilab

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Muon Collider & Neutrino Factory

■ Our First Close Interaction

- ◆ Shortly after my arrival to Fermilab in 2001
 - Meeting on the Muon Collider
- ◆ Discussions on ionization cooling
 - How to describe transverse longitudinal coupling
 - It became extremely useful years later in building of OSC theory

■ For many years Alvin was behind the muon collider

- ◆ Setting an effort in using warm superconductors for getting large magnetic field in the solenoids for ionization cooling
- ◆ Obtaining large electric fields in gas filled cavities
 - Very detailed approach based on theory developed by giants of the previous generation
 - May be not quite accurate statement if we are speaking about Alvin
- ◆ Required instrumentation
- ◆ Fostering young scientists:
Katsuya Yunebara, Ben Freemire & many others

Tevatron

- Tevatron Run-II was extremely ambitious and interesting project
- For me as well as for many of my friends and colleagues it was fantastic time
- Alvin was extremely caring about the Tevatron and its success
 - ◆ My first serious discussion with Alvin about what to do happened in linac tunnel in 2002 when it became clear that we are well behind the promised pace of the project
- I would like to mention 3 studies where Alvin's participation was essential
 - ◆ Study of proton scattering on the residual gas in Tevatron
 - Also a PhD project
 - ◆ Longitudinal profile monitor for Tevatron
 - Correction of dispersion in the cable
 - Observing "parasitic" bunches
 - Algorithm for computation of the longitudinal distribution function
 - ◆ IBS studies in Tevatron

IBS in Tevatron

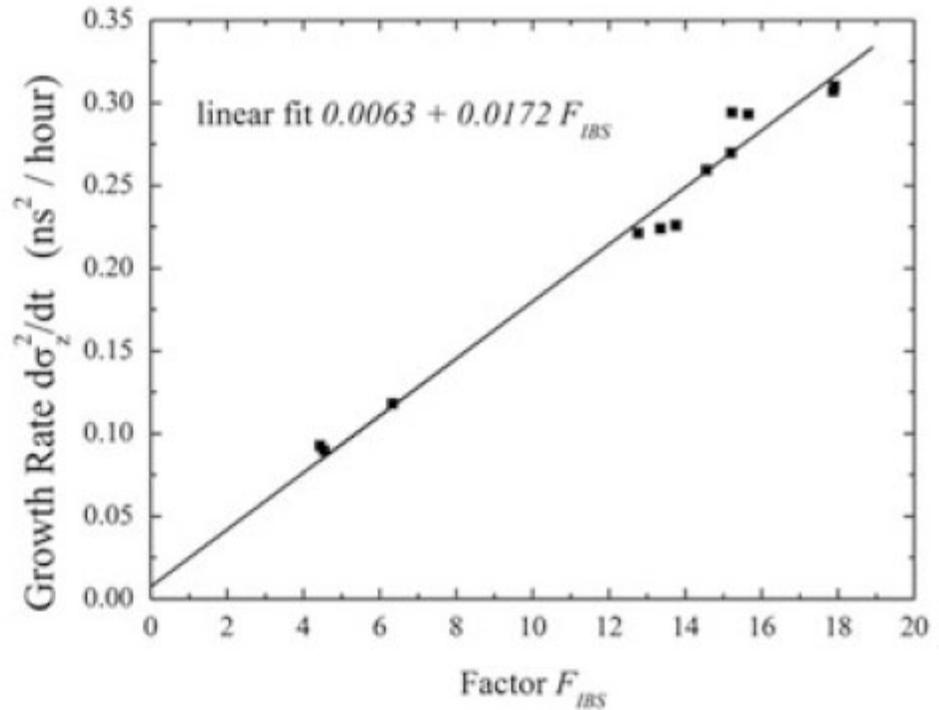
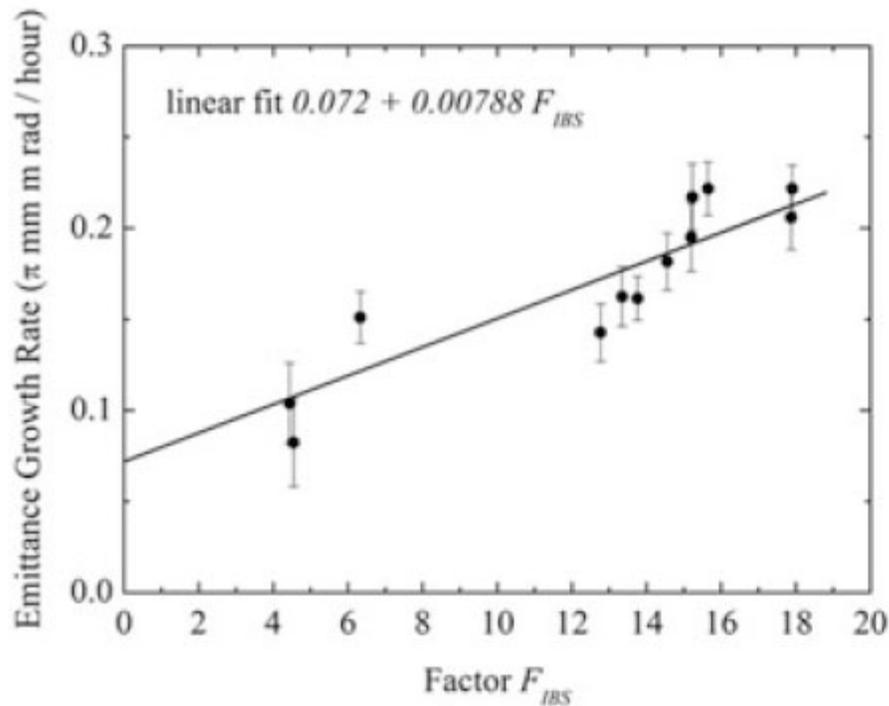


Fig. 6.12 Vertical emittance growth rates (rms, norm.) of proton bunches vs the IBS factor F_{IBS} (*left*); the rms bunch length growth rates vs the IBS factor F_{IBS} (*right*) [20]

- Observed non-zero emittance growth at small proton current
 - ◆ It is not gas scattering
 - ◆ It is related to the noise in SC dipole magnets => Hump at LHC

Personal Interaction

- Fantastic personality - not less important than the strength of the mind
 - ◆ Great sense of humor
- Fostering many young and not so young scientists
 - ◆ Be good to your students - One of them can be your director
It really happened
- New year tree decorating parties
 - ◆ Mid-December
 - ◆ Informal communication
 - ◆ Interesting people from different corners of the lab
 - Leon Lederman
 - ◆ Welcome to many scientists which came from abroad
- Fantastically productive, long and interesting life
 - ◆ Working to the last days

The whole epoch is gone together with Alvin.
I am grateful to the fate that we met and became
friends.



“Remembering Alvin: Tevatron”,
V. Lebedev, August 12, 2020



Our Last Dinner



January 2020