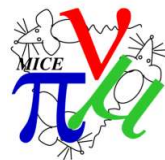
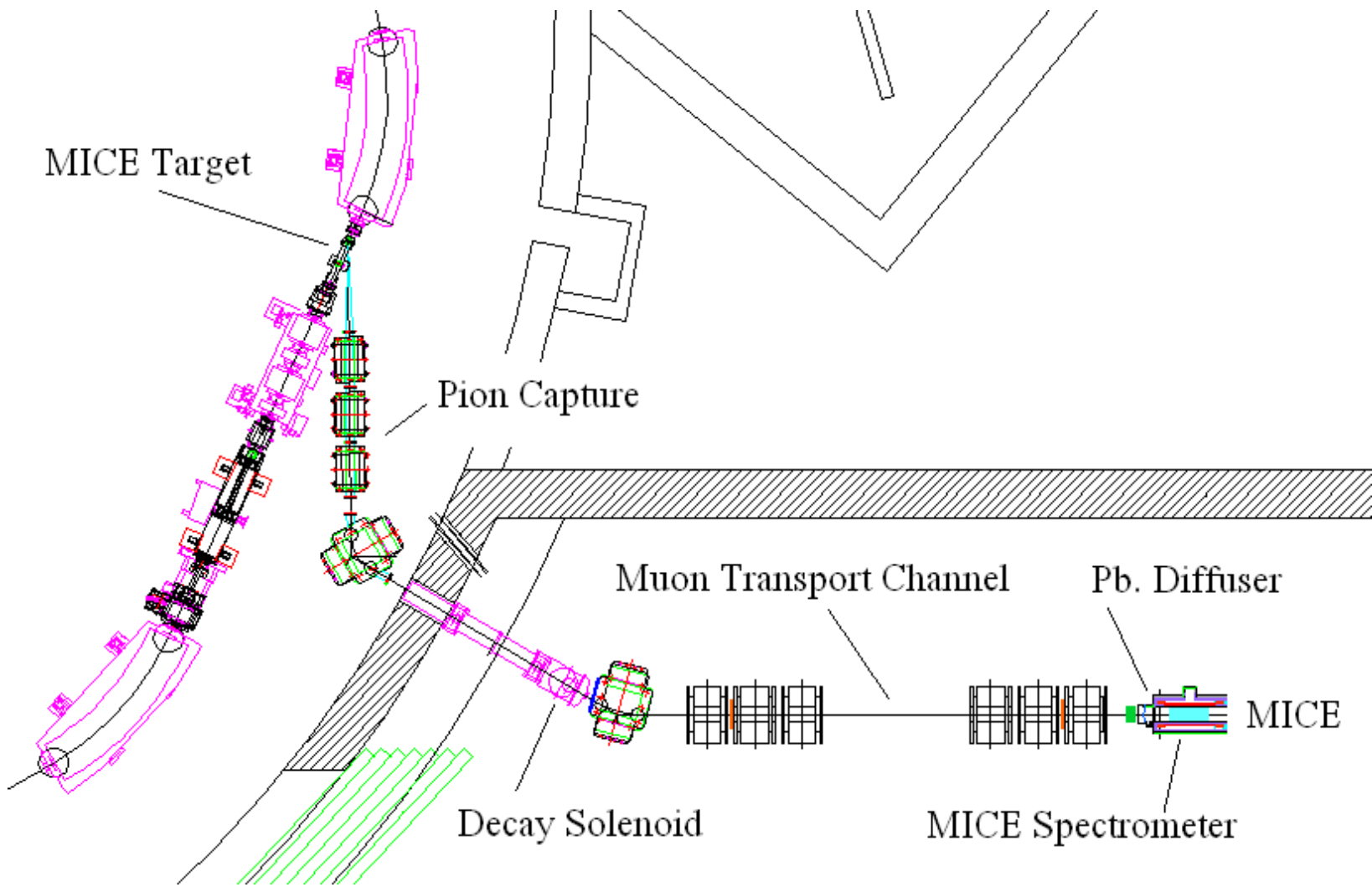


Beam Line Progress  
optics (kt)  
engineering (pd)





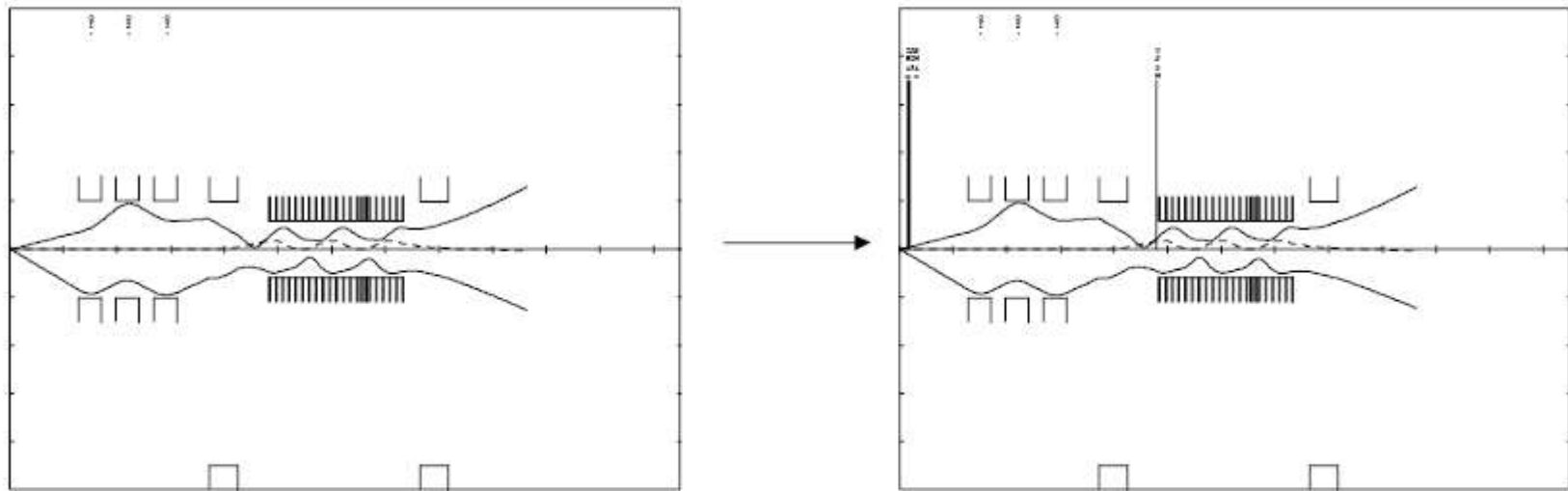
# Materials Issue...

- Aimed to include material effects
  - Scattering  $\sigma(\theta)$
  - Energy loss  $\sigma(\delta E)$
- Calculations with G4Beamline (KW)
- Fudge in Transport/Turtle
  - $\Rightarrow$  Match to  $\delta E$ 
    - $\Rightarrow \delta\theta \sim 30\%$



# Optics: Materials in beam line

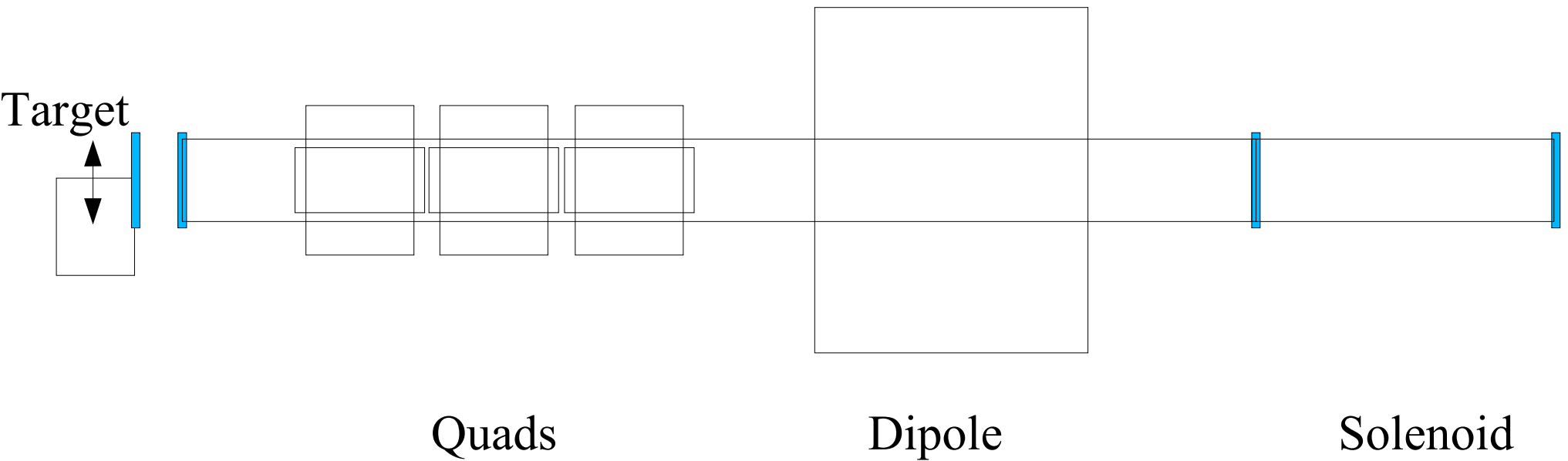
Pion injection + decay section :



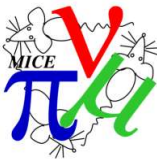
*Vac windows & Air added.  
Fields scaled fields for  $dp$  ->  
Hardly any difference.*



# Beam Windows

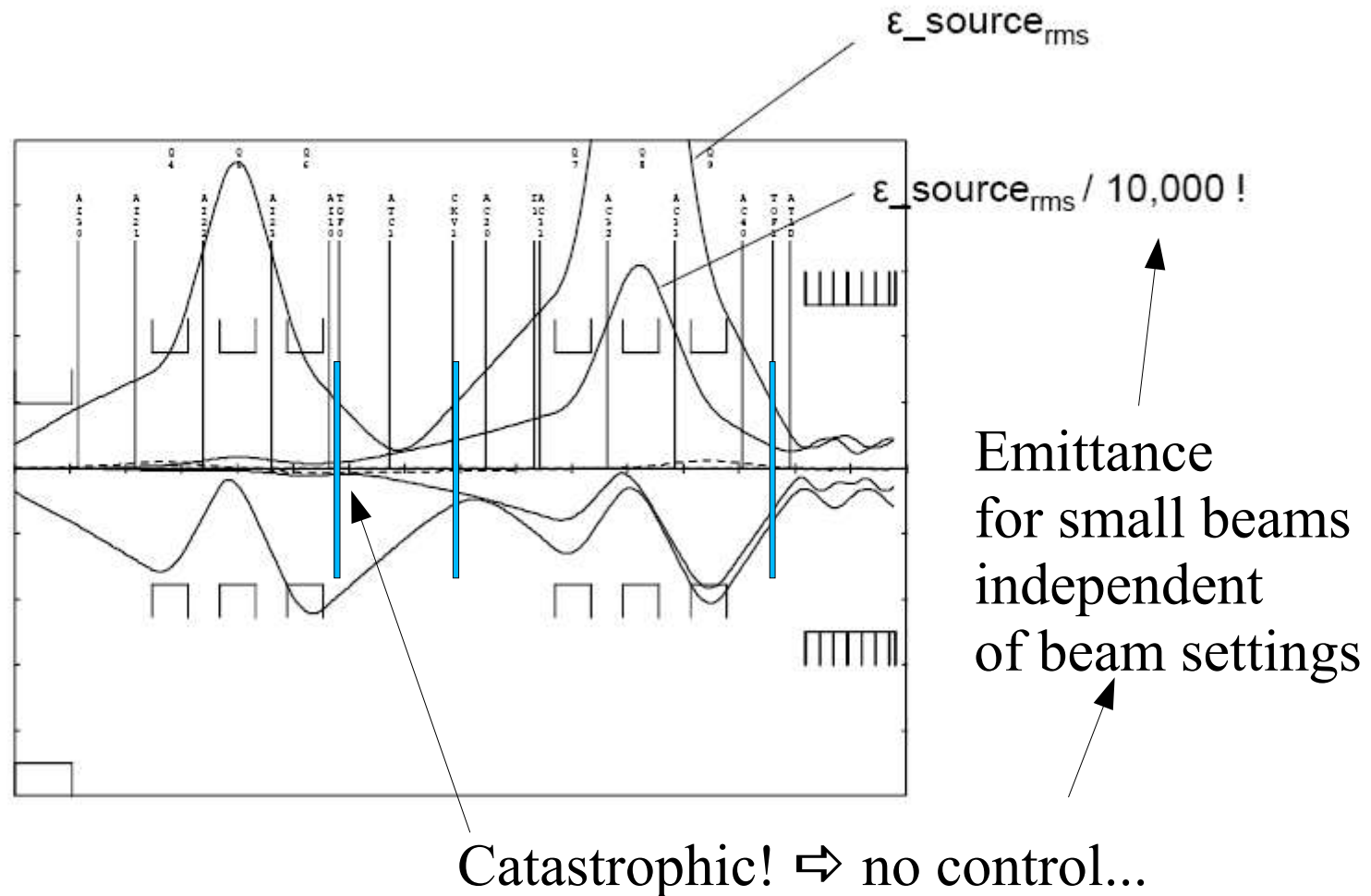


? proton attenuator



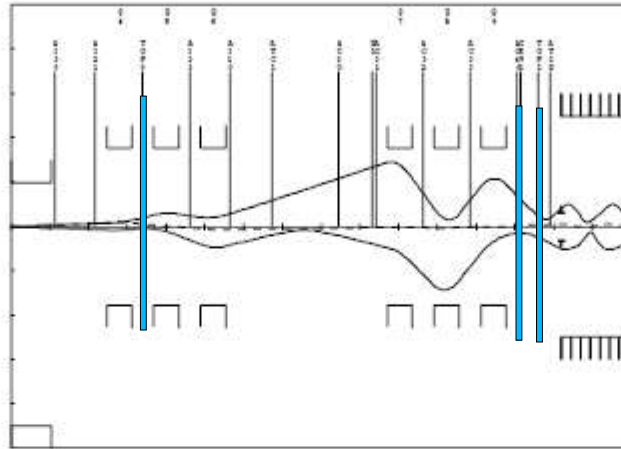
# Effect of TOFO

Muon transport:-



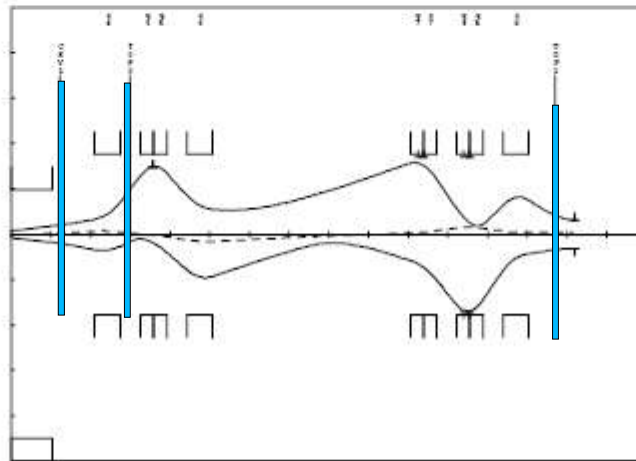
# Alternative Transports

$\epsilon_{\text{source rms}}/400 +$   
no match



(DJA)

$\epsilon_{\text{source rms}}/20$



Scoping  
alternatives  
- keeping  
triplet  
design  
- moving  
material around



# Optics Issues

- Work continues on matching section
  - Hope to achieve a better balance of rates along b/l
  - Alternative optics (DFD FDF etc; DFODFO...)
  - Additional quads...
  - G4Beam line to...
    - get rates &
    - rms emittance transported with clipping
- Still aiming for
  - 6  $\pi$  mm as base line and
  - To be able to achieve 10  $\pi$  mm as a maximum





# Optics Issues

- Thickness of TOF0
- Q9 affected by fringe field of solenoid (?)
- Q9 saturation (?)
- Matching & Diffuser position (for other reasons)
- Minimum TOF-distance
- How long can matching section be?

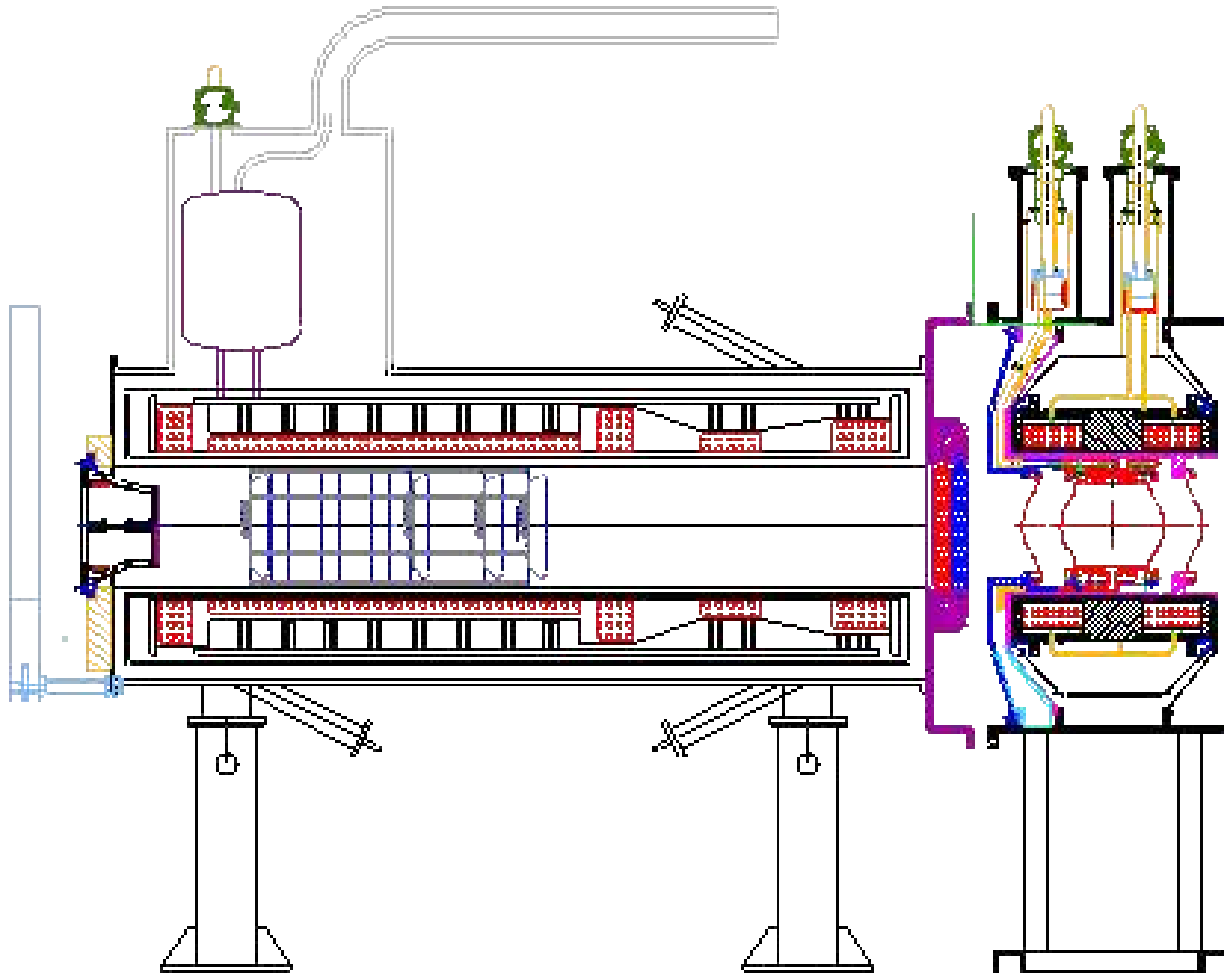


# Engineering

- Effort concentrated on
  - Target and impact on
  - replacement of “straight-7”
- Critical path items
  - Decide on use of a valve between synchrotron and target
- High priority
  - Target
  - Beam pipe & vac system for quads and dipole
  - Stands for quad and dipole;
  - power supplies – take advantage of ISIS-TS2 proc.



# Diffuser



Full size  
prototype  
has been made  
to test operation

details...

