

# PTC in the TT2-TT10 transfer line

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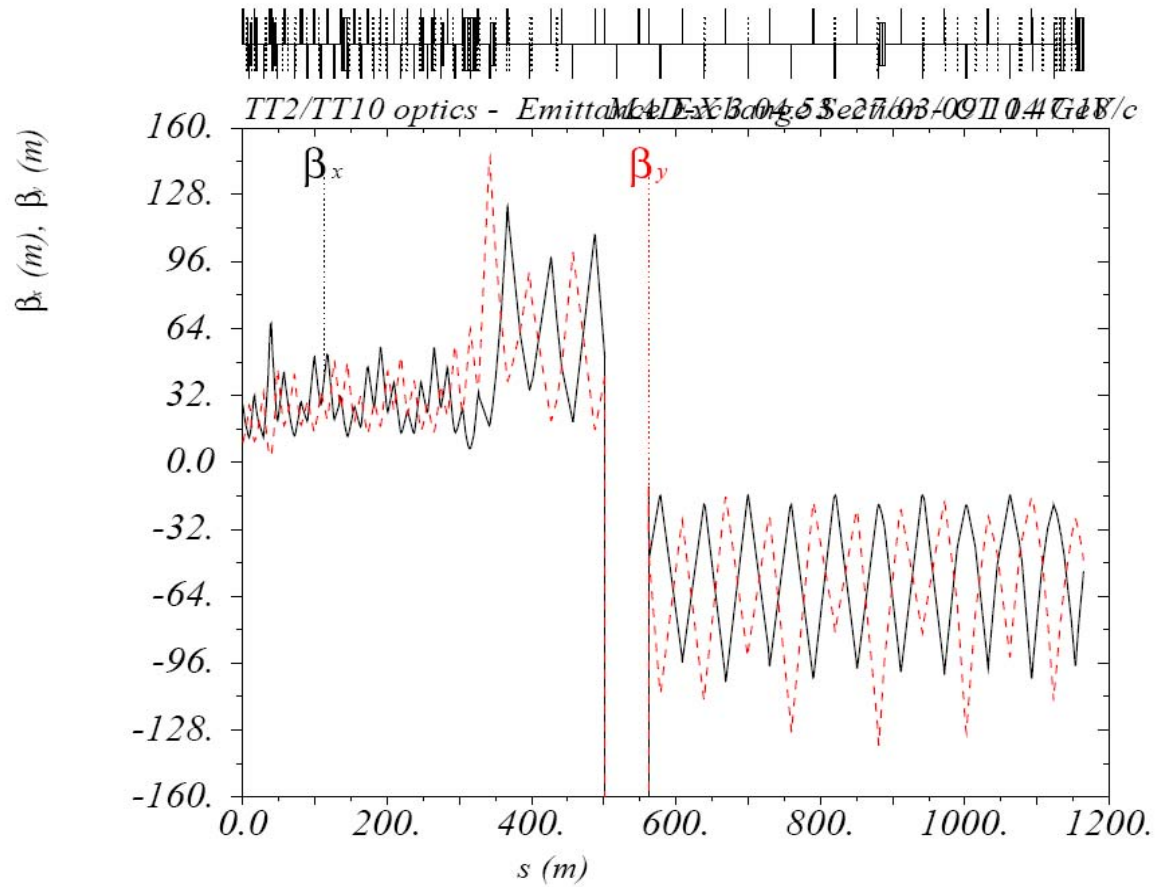
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Many thanks to F.Schmidt, A.Franchi, G.Arduini, ...

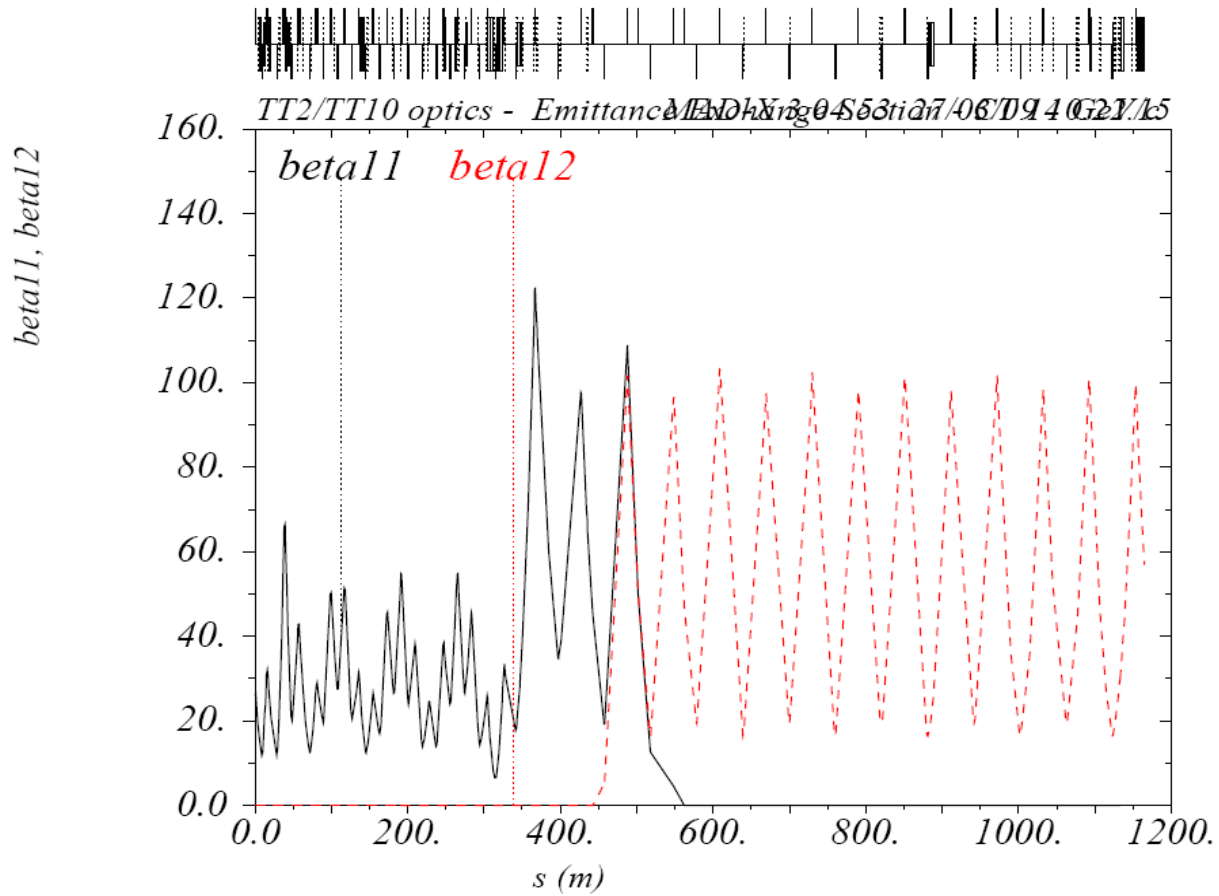
# Emittance Exchange Insertion

- Skew quads to exchange H – V phase plane
- In TT10, from ***QISK100637*** to ***QISK101036***
- Historically the CT beam had  $\varepsilon_V > \varepsilon_H$
- Constraints in SPS vertical aperture
- It cannot be easily modeled w. MAD, so either:
  - Split the line in 2 parts (tedious! ☹ )
  - **or... you use PTC ! ☺**

# MADX results



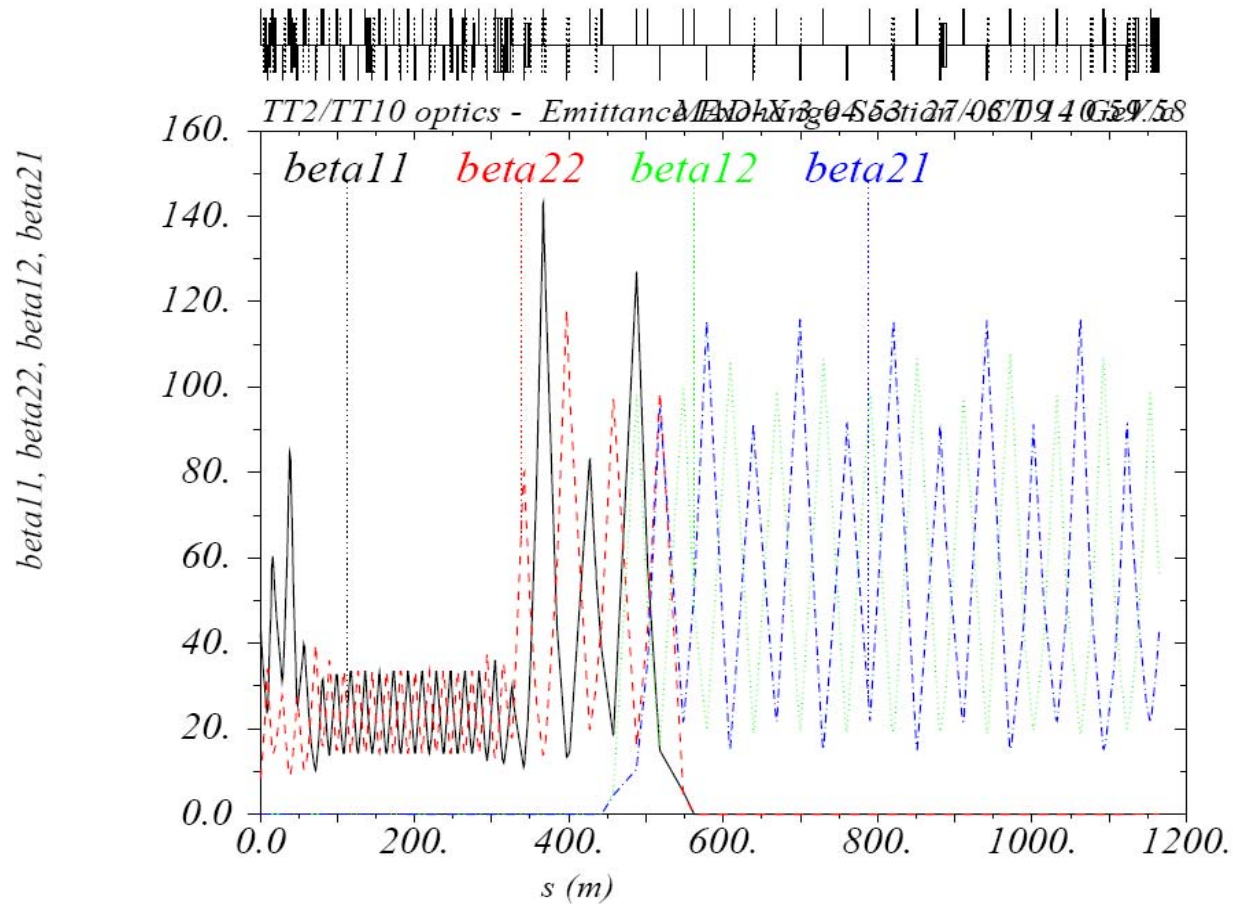
# PTC results



# Matching for the new MTE

- Very different initial condition at extraction from PS
- At present, seems for both core and islands  $\varepsilon_H > \varepsilon_V \rightarrow$  ok optics w/o PHASEX!
- **But we have to be ready** with an optics with PHASEX as well !

# Matching for the new MTE



# A trick for the matching!

- The matching works in the MADX environment
- Need to perform a matching with **USE\_MACRO**
- I had some problems to give to the matching routine a constraint over a range of elements:

```
constraint, range=#s/qde210, beta11<160.;
```

- It is enough to force the **table** in the ptc\_twiss to be “twiss”:

```
pt: macro={  
  ptc_create_universe;  
  ptc_create_layout, model=2, method=6, nst=5, exact;  
  ptc_twiss, table=twiss,  icase=5, no=1, BETA0=b_ini;  
  ptc_end;  
};
```