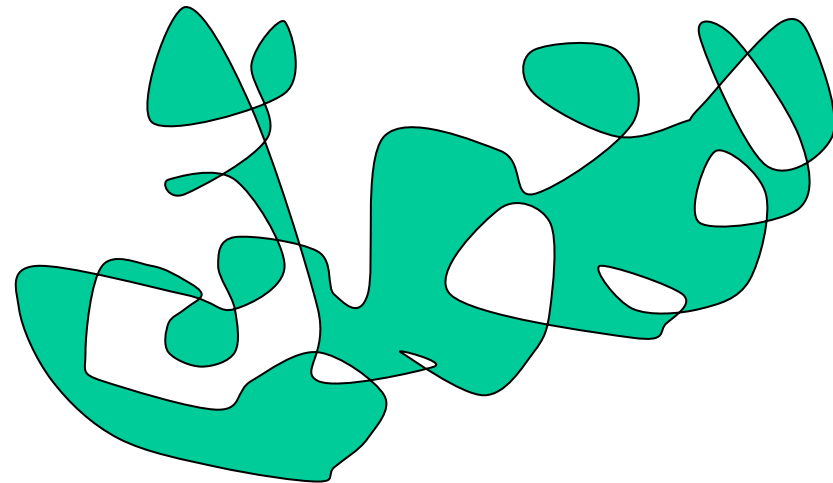


# TTF2: linear beam dynamics on-line

(development started 2 weeks ago)

V. Balandin, 1 August 2005



# Linear beam dynamics - not a big problem

6 + 2 D

motion is implemented, including rf-focusing (based on usage of on-axis accelerating field profile) and natural undulator focusing.

dynamics of reference energy and reference time of flight (although time of flight is not in usage yet)

## Beam line format - most problematic part

Direct connection to DOOCS or not (magnet calibration constants, positions and etc...)?

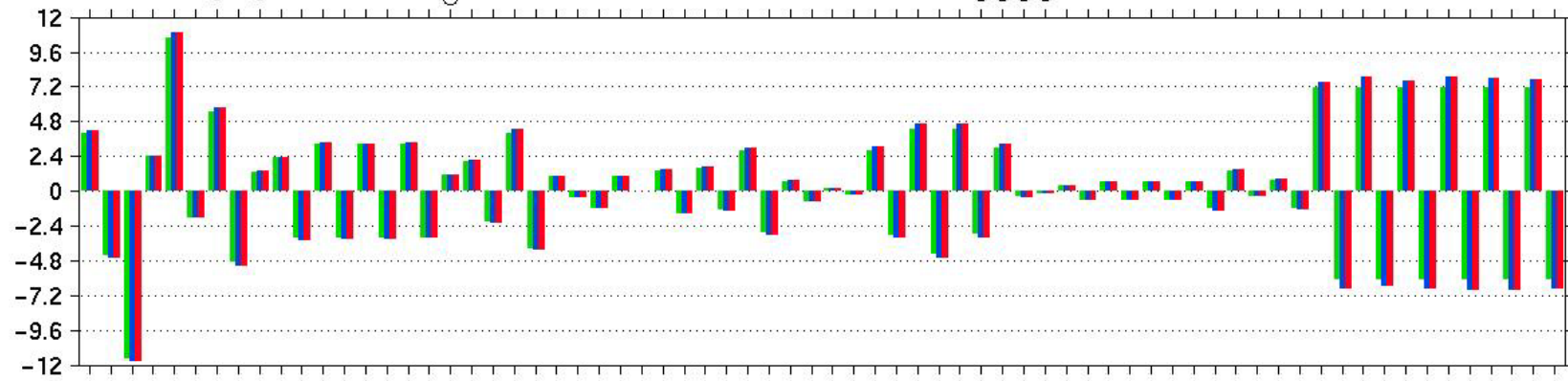
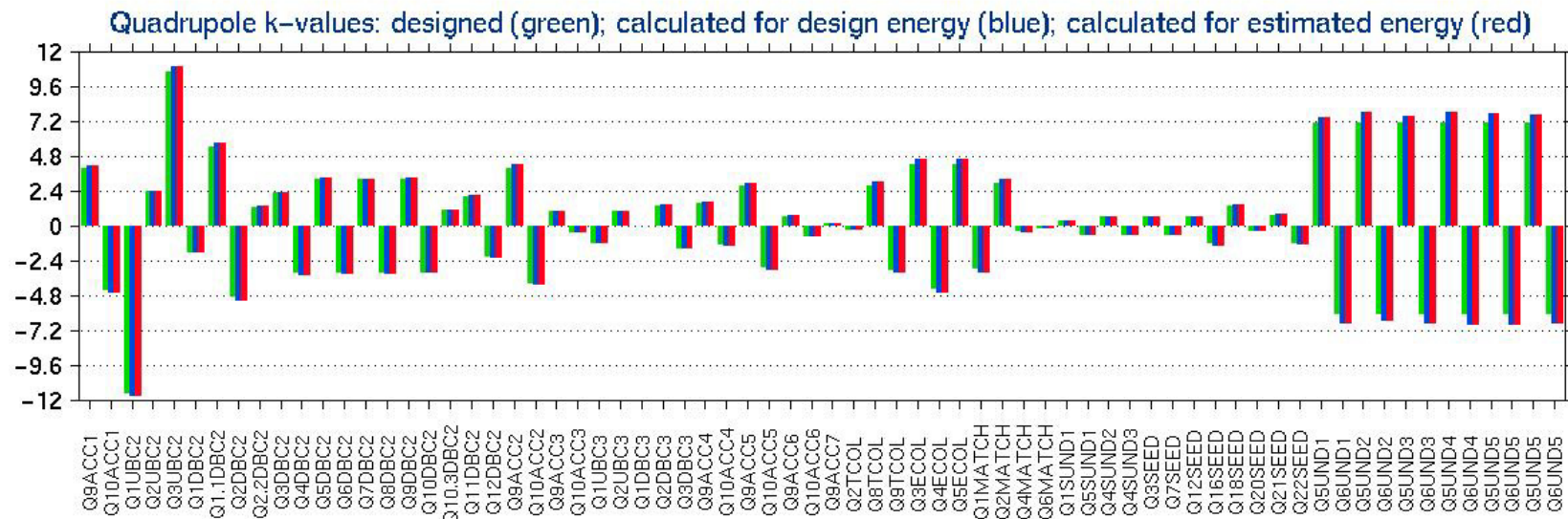
Beam line editing...

Exceptions handling (wrong polarities and etc...)

Support of different design optics

And etc....

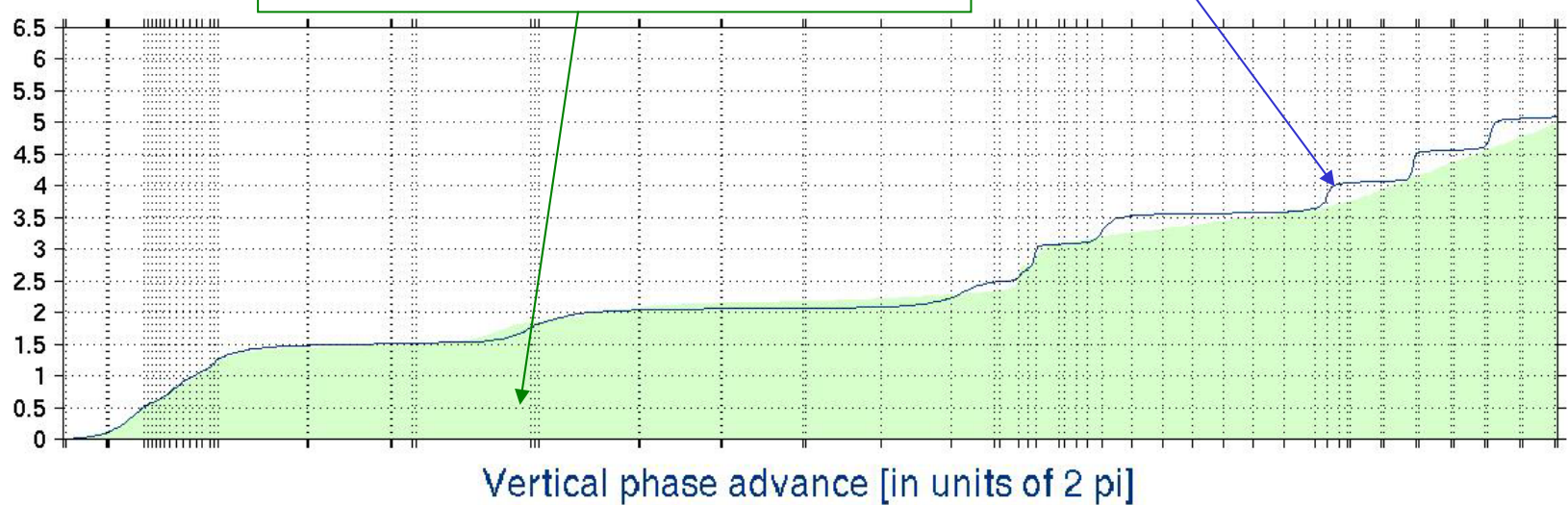
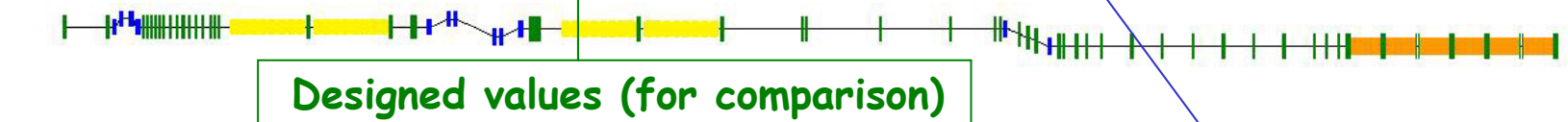
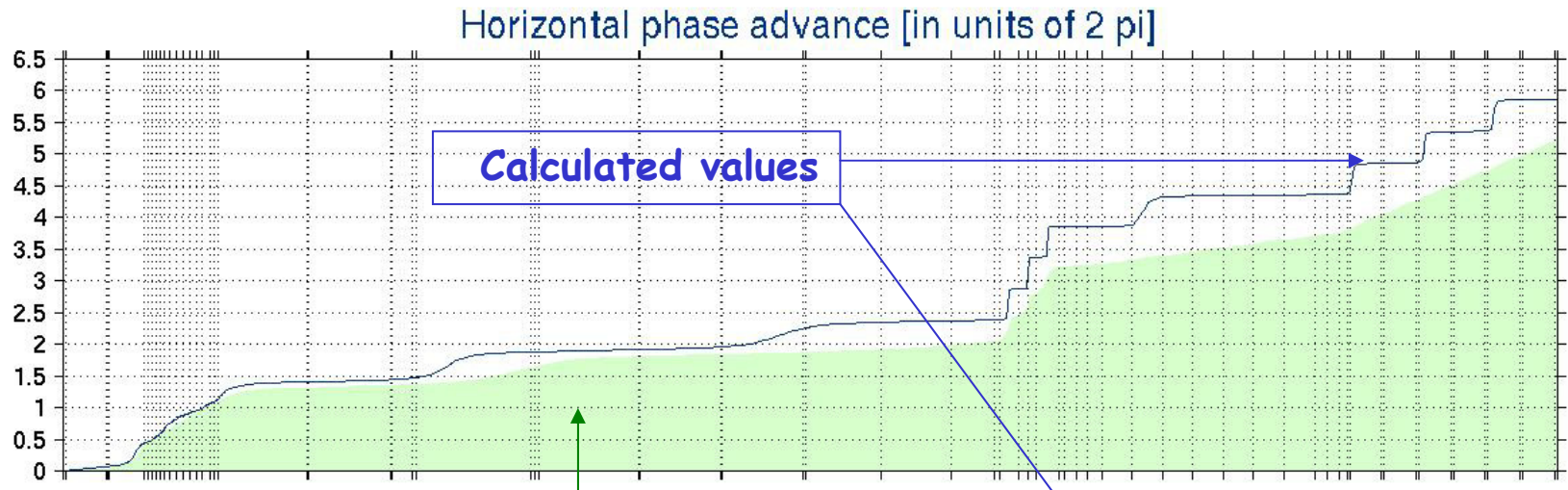
Current solutions are not very efficient !!! Much more work is needed !!!



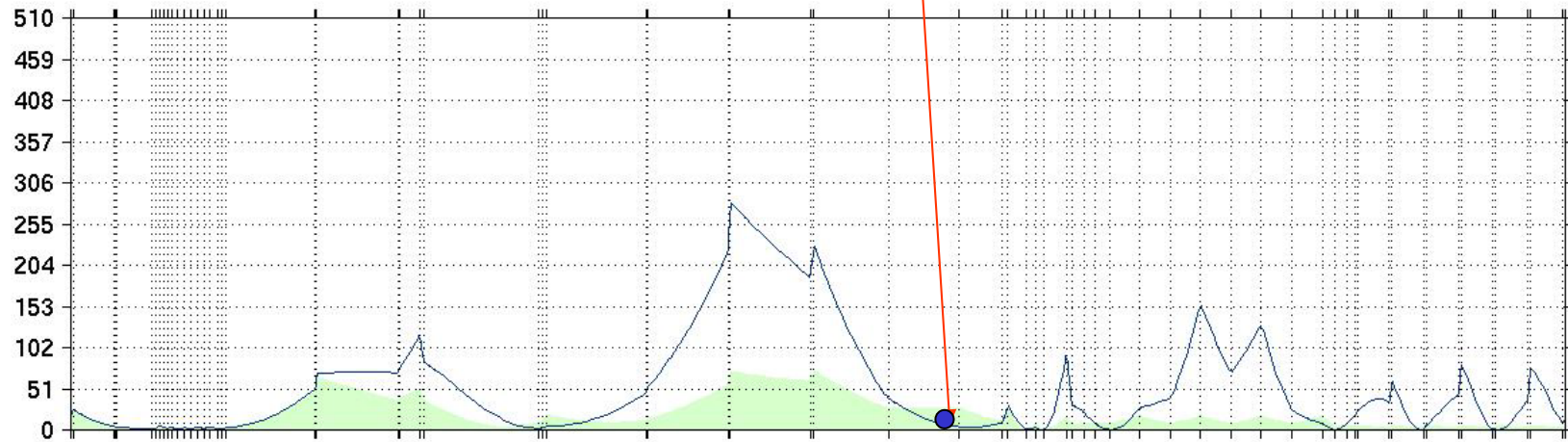
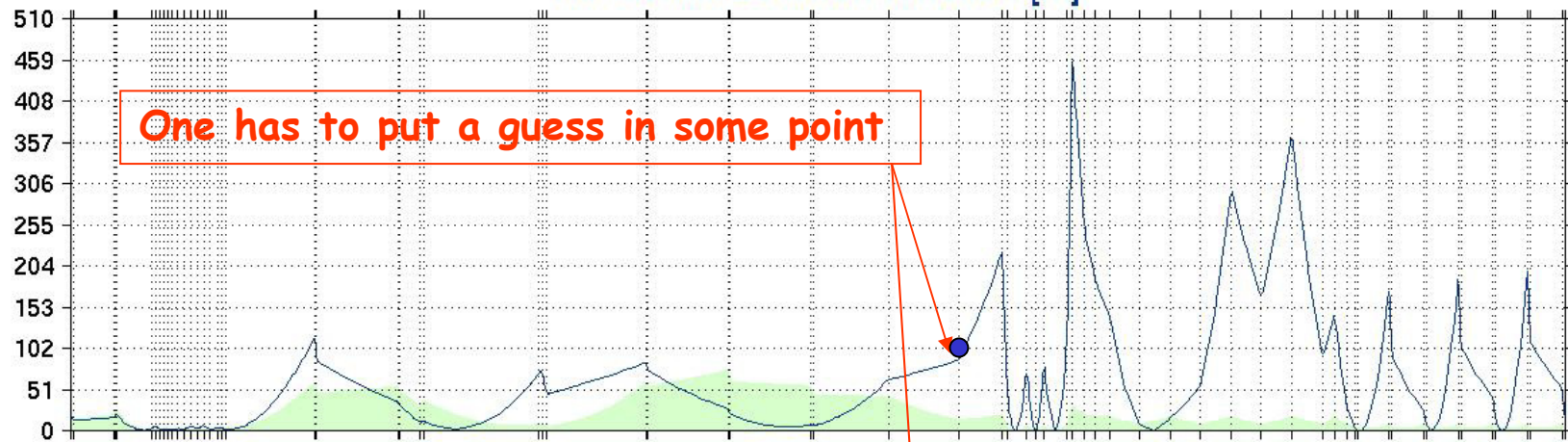
Power supply currents: designed for design energy (green); designed for estimated energy (blue); actual (red)

	ACC1	BC2	ACC2	ACC3	BC3	ACC4	ACC5
Designed	130.00	18.00	255.07	380.14	3.80	445.18	445.18
Estimated	127.00	18.44	244.51	362.05	3.99	411.86	411.86

Energy after accelerating modules (MeV) and bunch compressor angles (degree)



Horizontal betatron function [m]



Vertical betatron function [m]

Final purpose of that all has to be understood.  
Otherwise further development becomes problematic!

