

# *ATF2 Commissioning Strategy*

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*Novosibirsk, Russia (via Webex)*

# *Tasks of Beam Commissioning Team*

## *Before the beam commissioning*

### *Ranking of the stripline BPMs for ATF2 commissioning.*

Since we don't have enough budget to buy the new stripline BPM cables, we have a possibility not to install some of stripline BPMs at the beginning of the commissioning stage.

We must make the priority within the stripline BPMs for the commissioning work.

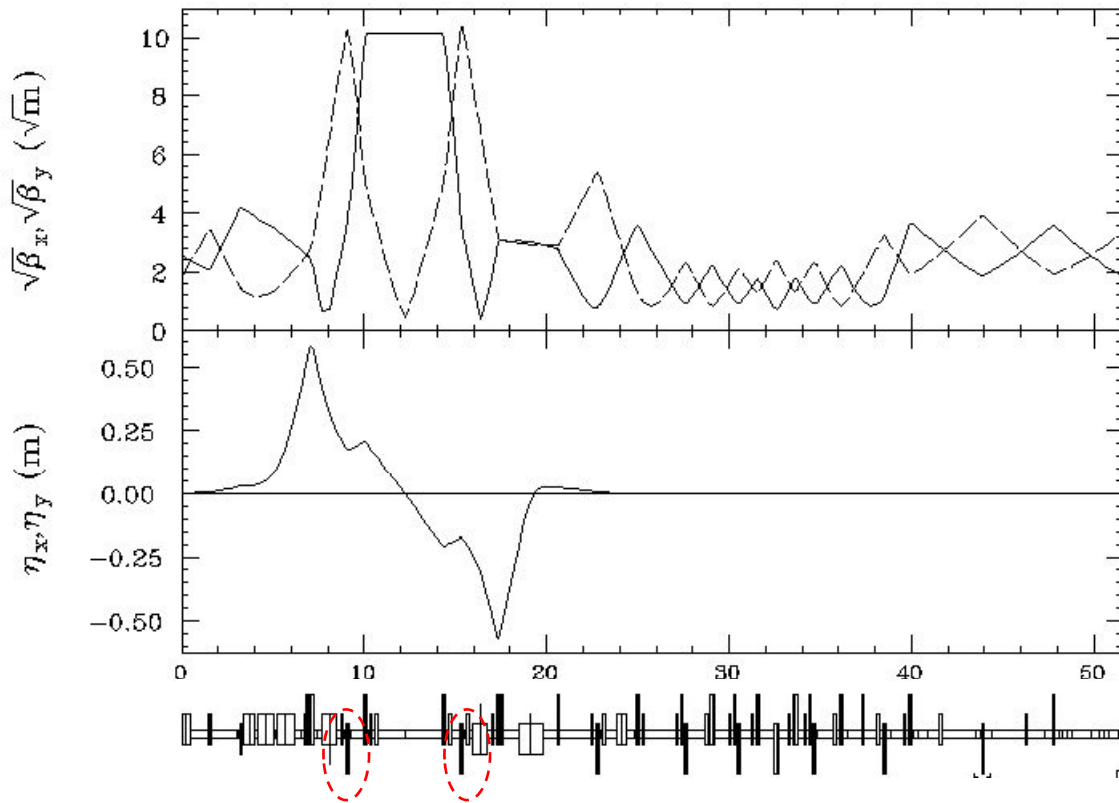
### *Beam deliver to the dump with small beam loss.*

Beam delivery is the first priority of the ATF in 2008.  
We should fix the optics for the initial commissioning.

### *Beam size tuning preparation at ATF2 final focus line*

We must start the software preparation ( flight simulator, SAD program ... ) from early stage.

## Ranking of the stripline BPMs for ATF2 commissioning.



Phase Advance from MQF1X

<b>MQF1X</b>	<b>0.000</b>	<b>0.000</b>
<b>MQD2X</b>	<b>168.066</b>	<b>4.651</b>
<b>MQF3X</b>	<b>169.934</b>	<b>5.568</b>
<b>MQF4X</b>	<b>172.341</b>	<b>175.627</b>
<b>MQD5X</b>	<b>173.557</b>	<b>176.841</b>
<b>MQF6X</b>	<b>342.993</b>	<b>179.821</b>
<b>MQF7X</b>	<b>364.341</b>	<b>201.254</b>
<b>MQD8X</b>	<b>442.892</b>	<b>209.395</b>
<b>MQF9X</b>	<b>499.201</b>	<b>224.782</b>
<b>MQF13X</b>	<b>680.337</b>	<b>463.554</b>
<b>MQD14X</b>	<b>723.433</b>	<b>485.897</b>
<b>MQF15X</b>	<b>782.005</b>	<b>502.695</b>
<b>MFB1FF</b>		
<b>MFB2FF</b>		
<b>MBUMP</b>		

*Since **red BPMs** are located in between bending magnets, these BPMs are important to tune the beam orbit.*

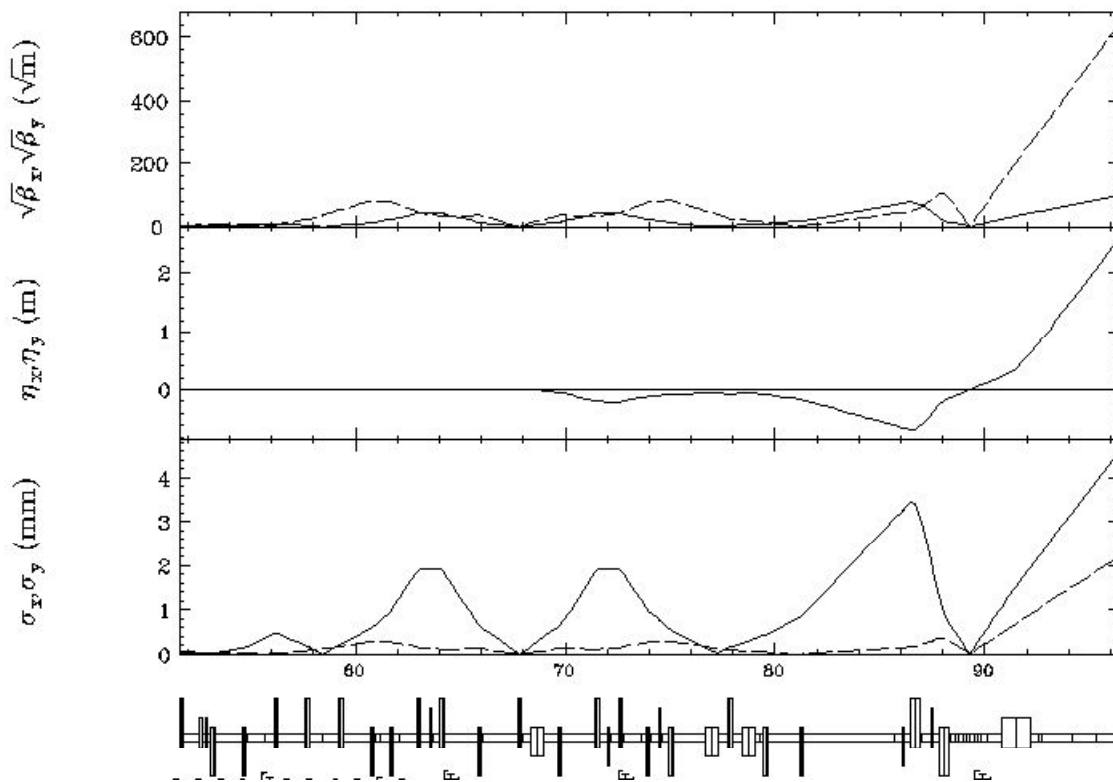
*The priorities of **blue BPMs** are a little bit lower than that of others.*

- *Since MQD2X to MQD5X are located on same bending magnet section, MQD2X and MQD5X give us small information than others.*
- *MQF13X and MQF15X are located at straight section and cavity BPMs are near by them.*
- *MFBs will be used only for the local system of FONT group.*

# Beam deliver to the dump with small beam loss

I think it is better to use the simple and easy optics to deliver the beam to the dump at the beginning of the ATF2 operation.

## Normal Optics



### Advantage

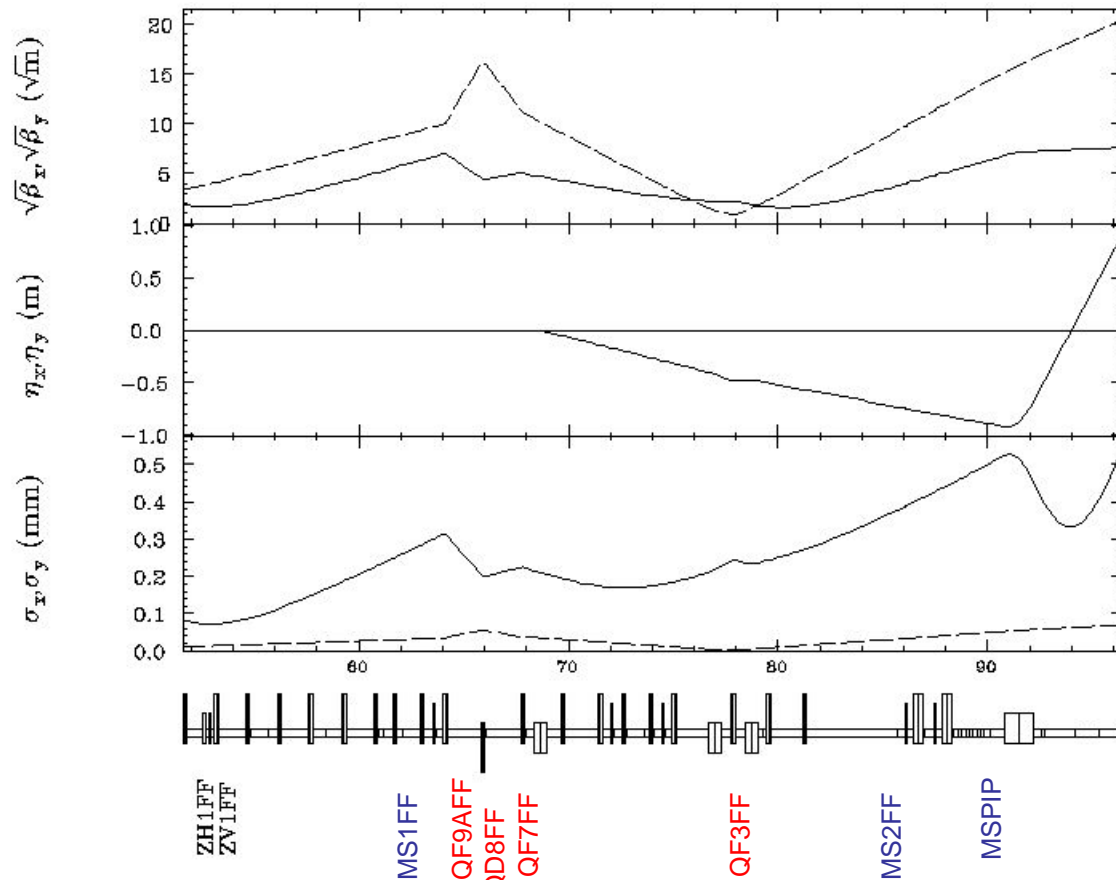
Easy to shift to the beam tuning phase

### Disadvantage

Large beam size

Large number of ambiguity

# Example of Special Optics for Commissioning



*Extraction section  
same to the nominal*

*Final focus section  
turn on only 4 quads*

**QF9AFF 0.293 1/m**  
**QD8FF -0.387 1/m**  
**QF7FF 0.144 1/m**  
**QF3FF 0.195 1/m**

## Advantage

*Small beam size*

*Possible to be BPM calibration*

*Possible to be first step of BBA*

*Mechanical alignment of bending magnet rotation*

*Fix the strength of the bending magnet and easy to make a orbit reference*

## Disadvantage

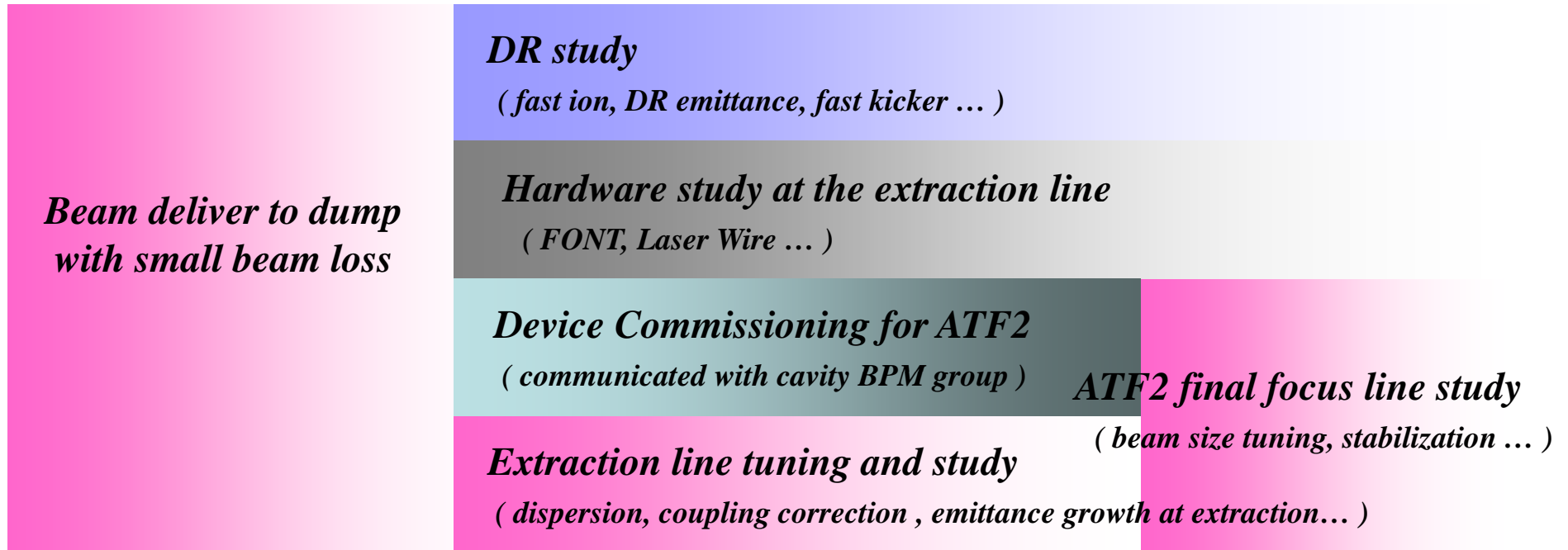
*Small number of beam steering knob*

*Difficult to put IPBPM*

# *Schedules of ATF2 commissioning*

*ATF2 Start*

*2008.12 or 2009.01 ~ ?*



# *Tasks of Beam Commissioning Team*

*After the first stage beam commissioning*

## *Cavity BPM commissioning and optics modeling.*

Since BPM center and position sensitivity should be fixed by the beam information, and since the cavity BPM information are very important for most of the beam tuning, the beam commissioning group must communicate with cavity BPM group.

Optics modeling and measuring the quadrupole strength error also will be started at the same time.

These studies are important to the preparation of the ATF2 FF line tuning.

## *Beam diagnostics at extraction line.*

Dispersion correction, coupling correction, emittance growth study ... are included in this task.

### *- Bud news for extraction runing*

Since we cannot use the QK2X and QK3X at the beginning of the ATF2 commissioning, the coupling correction study should be used only for QK1X and QK4X.

## *Beam size tuning at ATF2 final focus line.*

The beam study itself will be started after that the Shintake monitor will be ready.