***time***

Flattop

**The emergency kickers can be triggered at any time by MPS**

**Phase shift**

Step 1

Begin synchronization

Freeze stabilization

Step 2

Collect data locally

Step 3

Gather data from two synchrotrons

RF phase shift method

Step 4

* Calculate synchronization window for both synchrotrons and DM at the source synchrotron
* Reproduce the bucket label signal
* Shift the RF phase

Step 5

Generate kicker trigger signal

Step 6

Fire injection/extraction kickers

**Frequency beating method**

Step 1

Begin synchronization

Freeze stabilization

Step 2

Collect data locally

Step 3

Gather data from two synchrotrons

Step 4

* Calculate synchronization window for both synchrotrons and DM
* Reproduce the bucket label signal

Step 5

Generate kicker trigger signal

Step 6

Fire injection/extraction kickers

**Synchronization**

**window**

f + **Δf**

***RF frequency***

f

**Frequency**

**detune**

***Δf***