MULTIBUNCH DYNAMICS

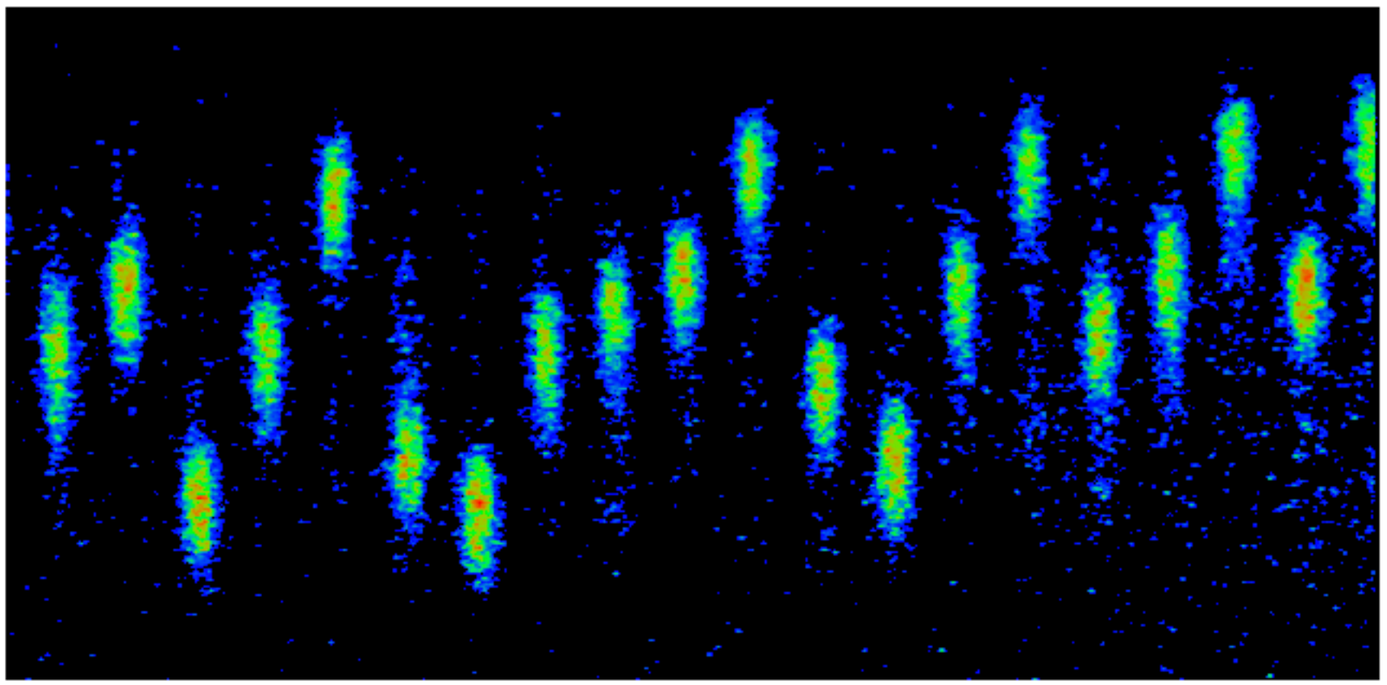
☞ Single RF system 100 MHZ

Non current limiting multibunch longitudinal instabilities occur in 24bunch mode with total threshold currents around 30 mA.

These result in large amplitude phase oscillations(> 1.5 ns) with many modulation sidebands present around all revolution harmonics.

Imax = 420 mA

ι = 13 h



200 ns

☞Double RF system 100 MHZ + 500 MHz

Main cavity : Vrf = 170 kV, Rs = 3.25 MΩ Q = 26000 β = 1.15

Harmonic cavity: Passive mode Rs = 3MΩ Q = 35000 β = 1

With appropriate detuning angle we reach zero slope total RF at the bunch position.

Large bunch lengthening multibunch stability are obtained. Lifetime remains the same.