

FEATHER (羽)

# FEATHER: Feedback AT High Energy Requirements

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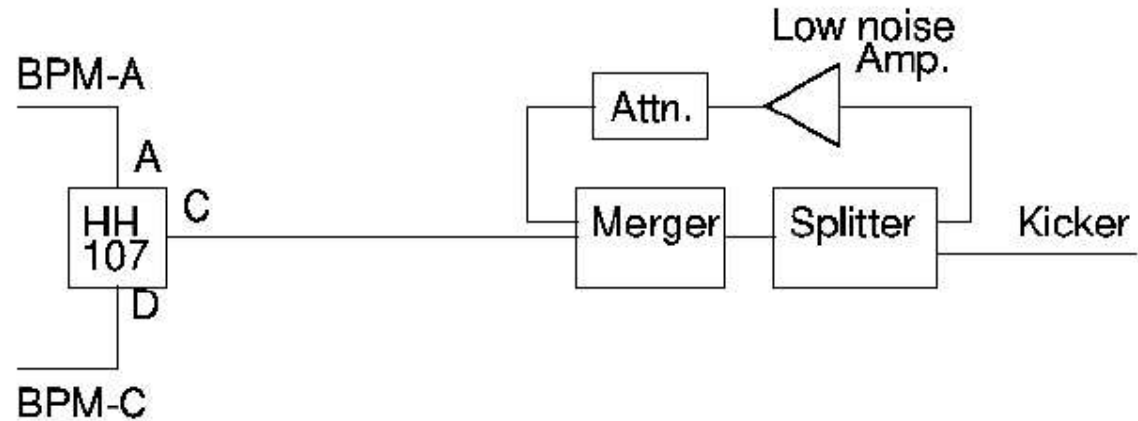
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# Extraction line layout



- Feedforward and feedback are possible
- Feedforward uses a cavity BPM + movable electrode kicker
- Feedback uses the new button BPM + kicker

# Time budget



- The response time of our new amplifier has been measured: 5.6 ns
- There is ~1 meter between our kicker and our BPM
  - = > Beam flight ~ 4 ns
  - = > Cable delay ~ 7 ns
- Various electronics delay should be less than 5ns
- Response should come ~20ns after first bunch
- Delay loop needs ~11ns more (Total ~35 ns)
- 20 bunches at 2.8 ns make a 56ns train
  - = > Should be possible to test our delayed model

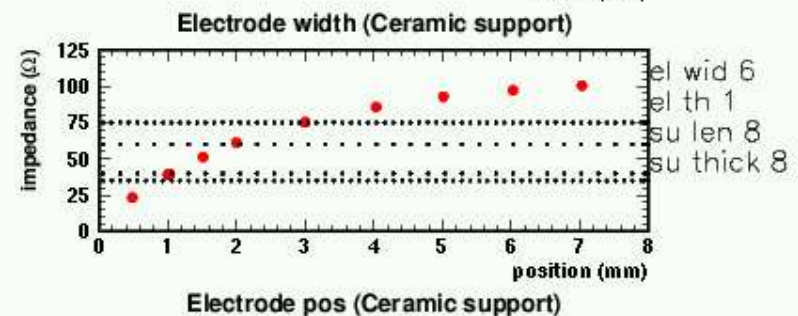
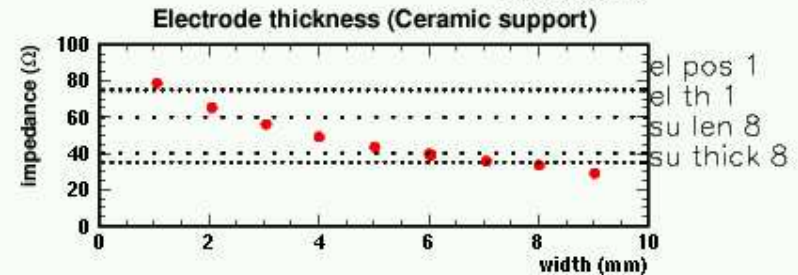
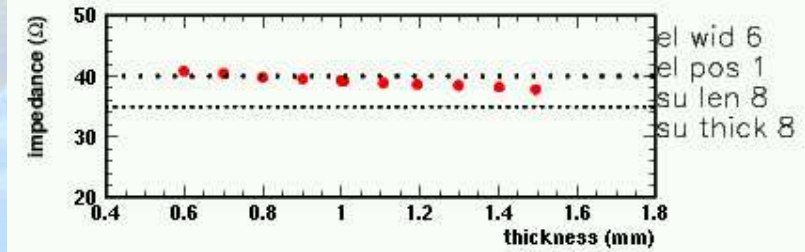
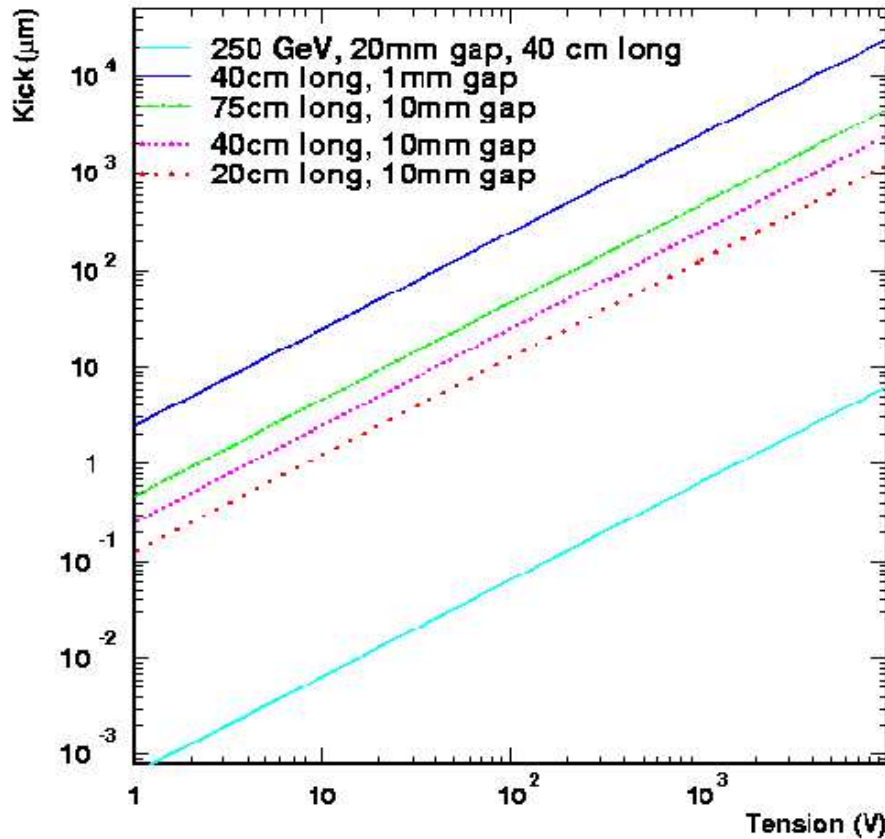
# Kicker with a movable electrode

A kicker with a movable electrode has been designed.

(Simulations with POISSON/SUPERFISH)

This allow us to have a small gap between the two electrodes.

2004/04/01 04.44



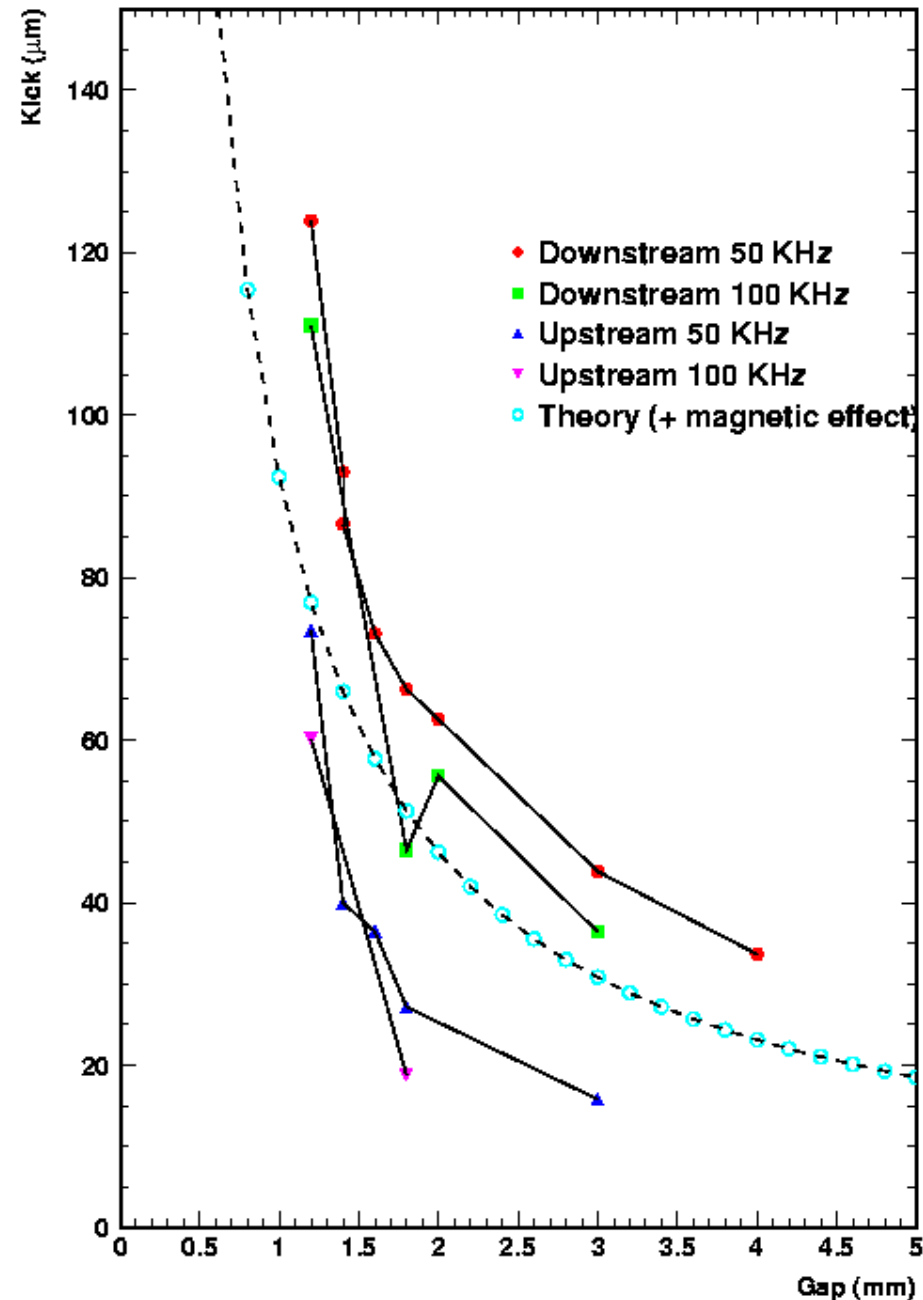
KEK report 2003-6

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# kick vs gap (low frequency)

*Commissioning of the  
movable electrode  
kicker:*

Kick intensity as a  
function of the gap for  
both input upstream and  
downstream.



# Scan of the acceptable trajectories

Vertical orbit of the beam has been modified several times to scan the acceptable orbits and thus deduce the position of the kicker's electrodes.

Smallest gap has been found at 13.09/12.49  
This correspond to a gap at the windows of ~1.12 mm (electrodes are bent)

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