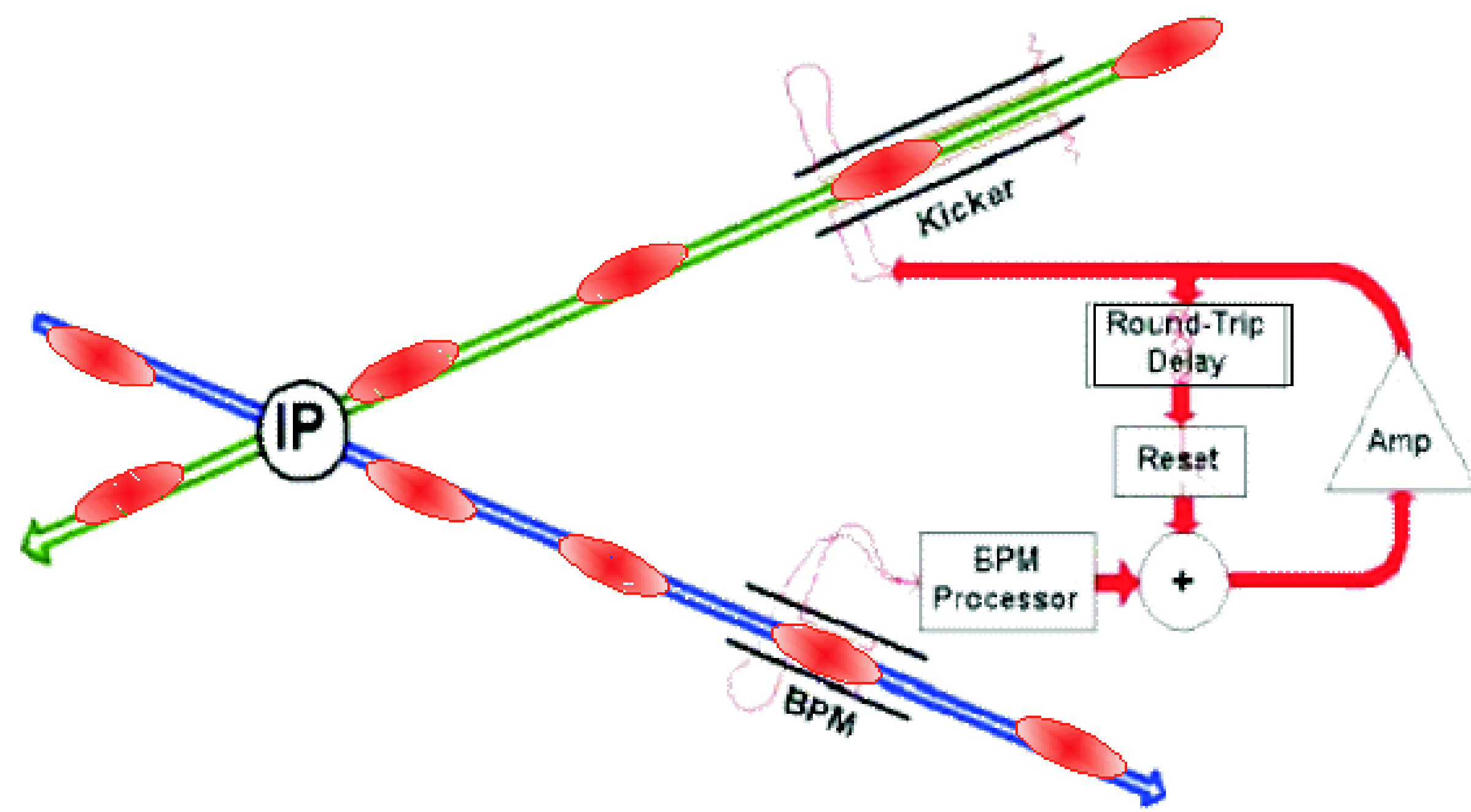


# Performance of the FONT3 Fast Analogue Intra-Train Feedback System at ATF

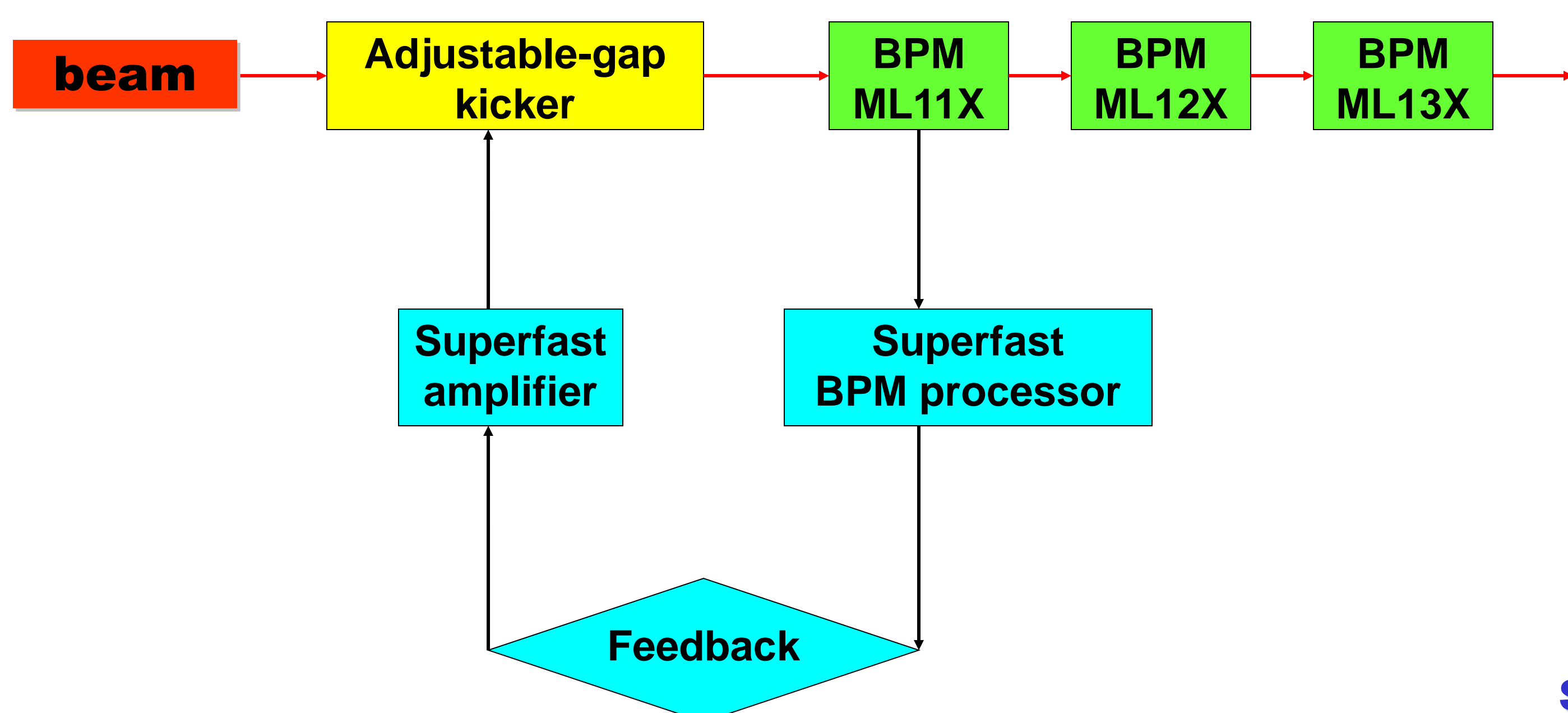
**P.N. Burrows, G. Christian, C. Clarke, H. Dabiri Khah,  
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(John Adams Institute, Oxford University)  
**A. Kalinin (Daresbury Laboratory)**  
**D. McCormick, S. Molloy, M. Ross (SLAC)**

## Linear Collider intra-train feedback concept:

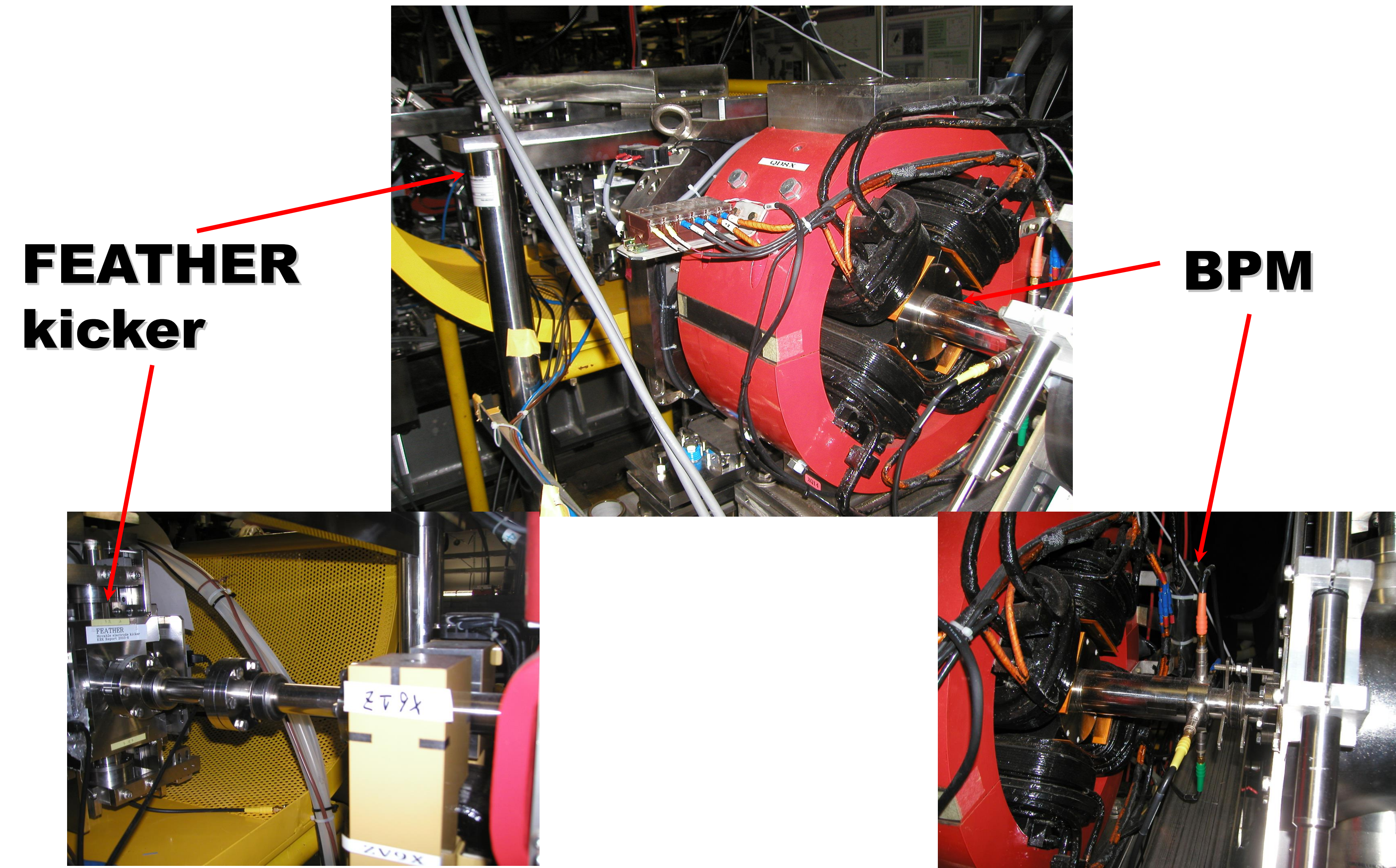


**Detect position offset of incoming bunches early in train. Calculate correction and apply with kicker to later bunches**

## FONT3 fast analogue prototype at KEK ATF:



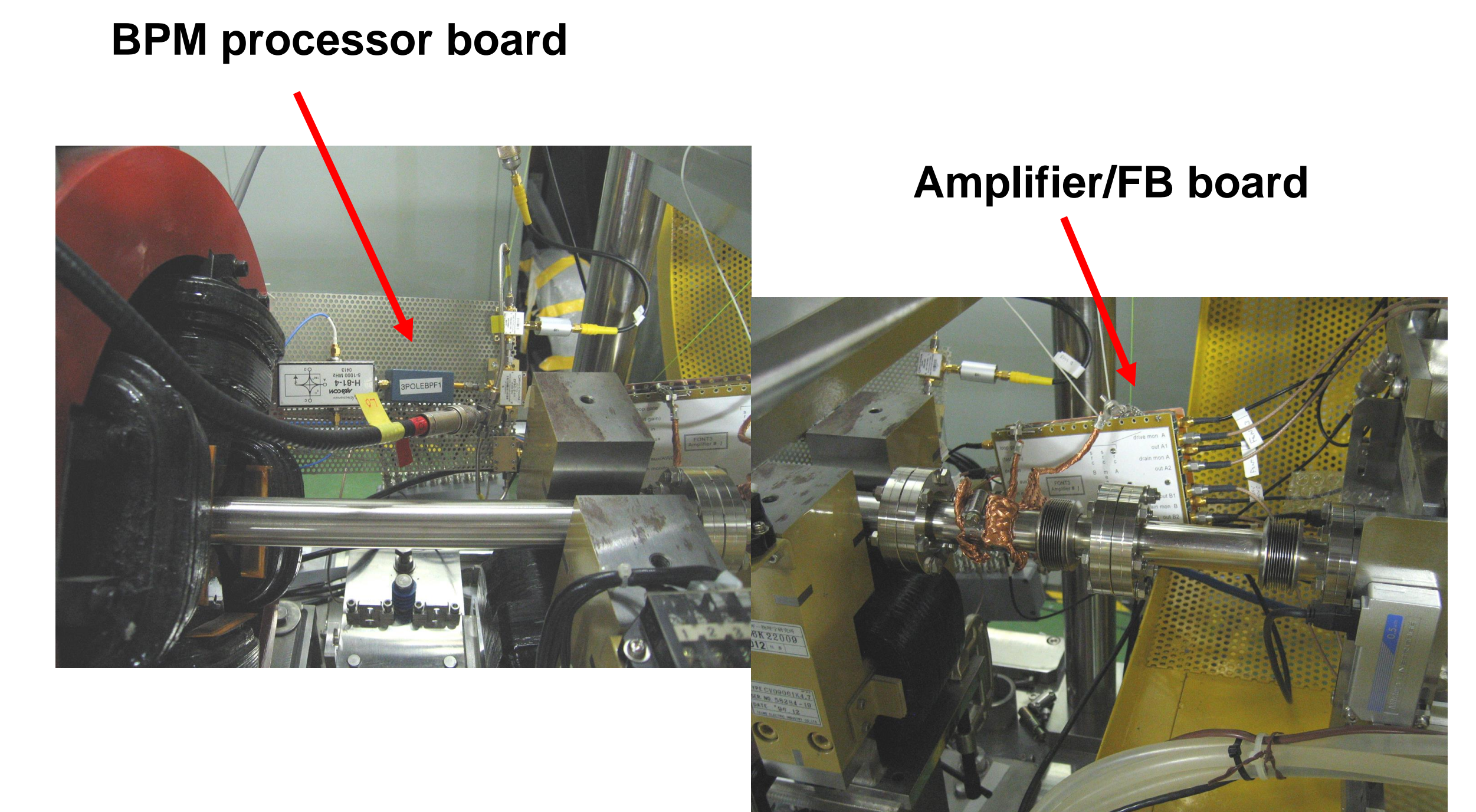
## ATF extraction line:



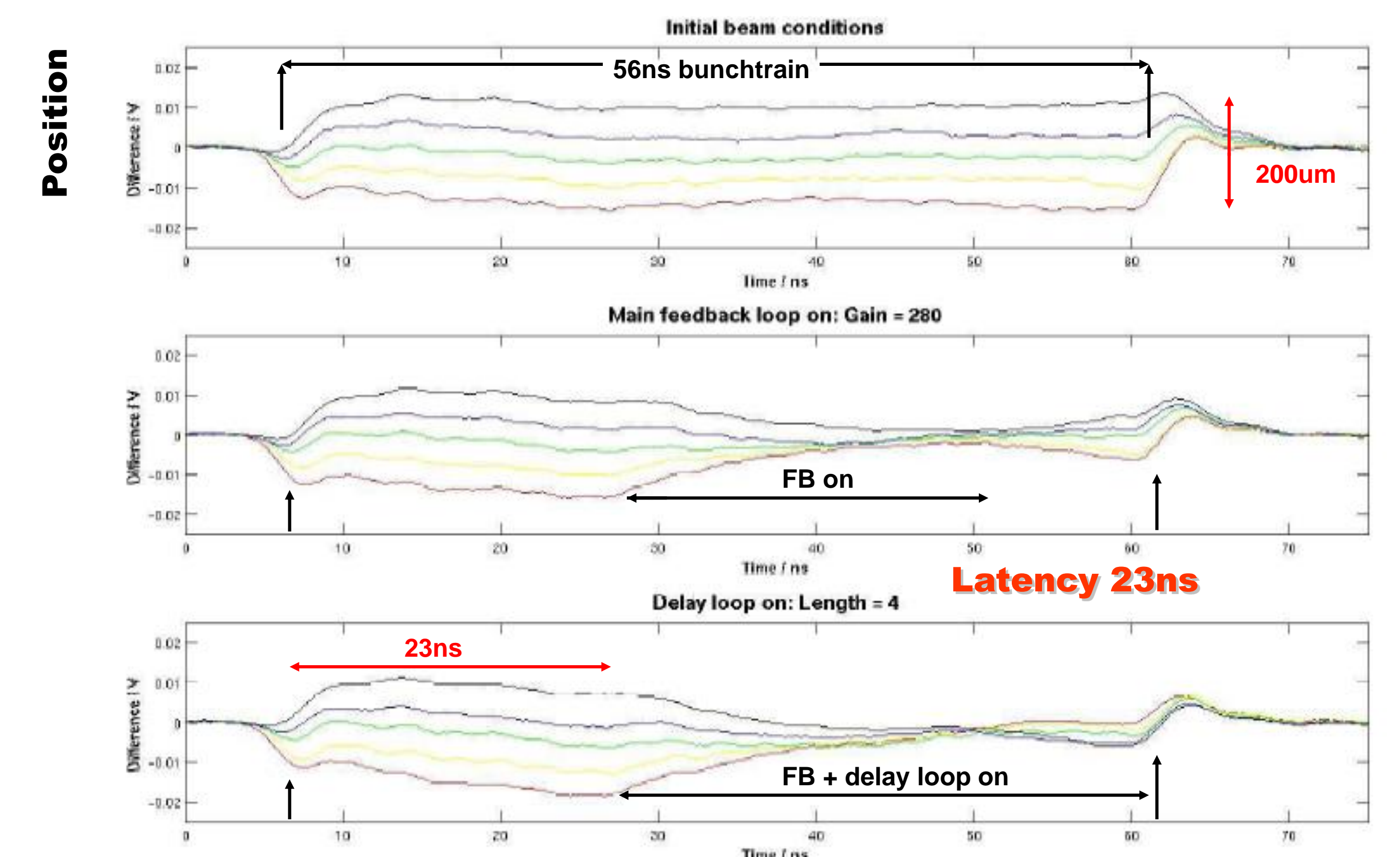
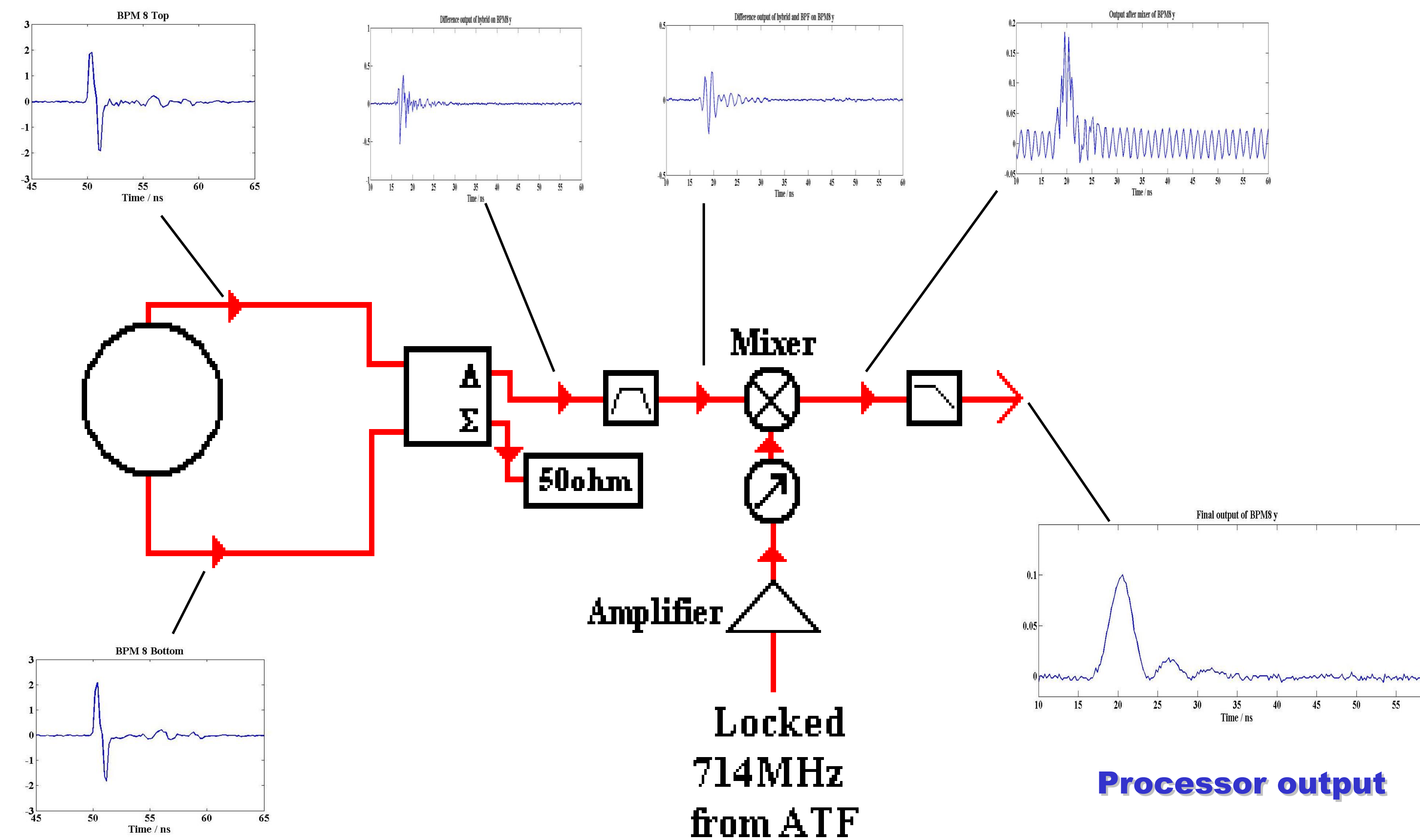
## Latency budget

Time of flight kicker – BPM:	4ns
Signal return time BPM – kicker:	6ns
<b>Irreducible latency:</b>	<b>10ns</b>
BPM processor:	5ns
Amplifier + FB:	5ns
<b>Electronics latency:</b>	<b>10ns</b>
<b>Total latency budget:</b>	<b>20ns</b>
<b>Allows 56/20 = 2.8 periods during bunchtrain</b>	

## Beam test results:



## Signal processing:



Stripline BPM inputs

Processor output