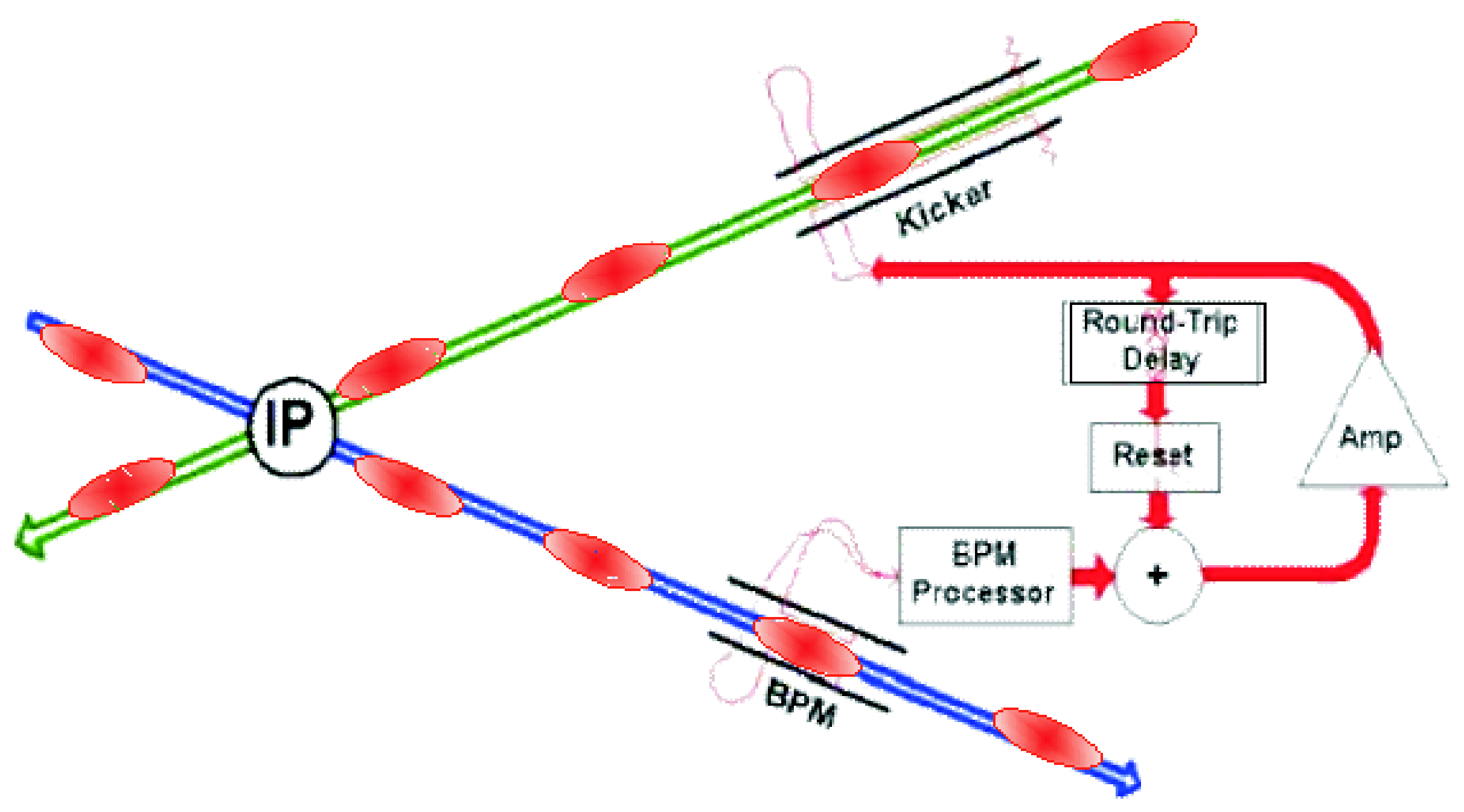


Tests of the FONT3 Intra-Train Beam Feedback System at the ATF

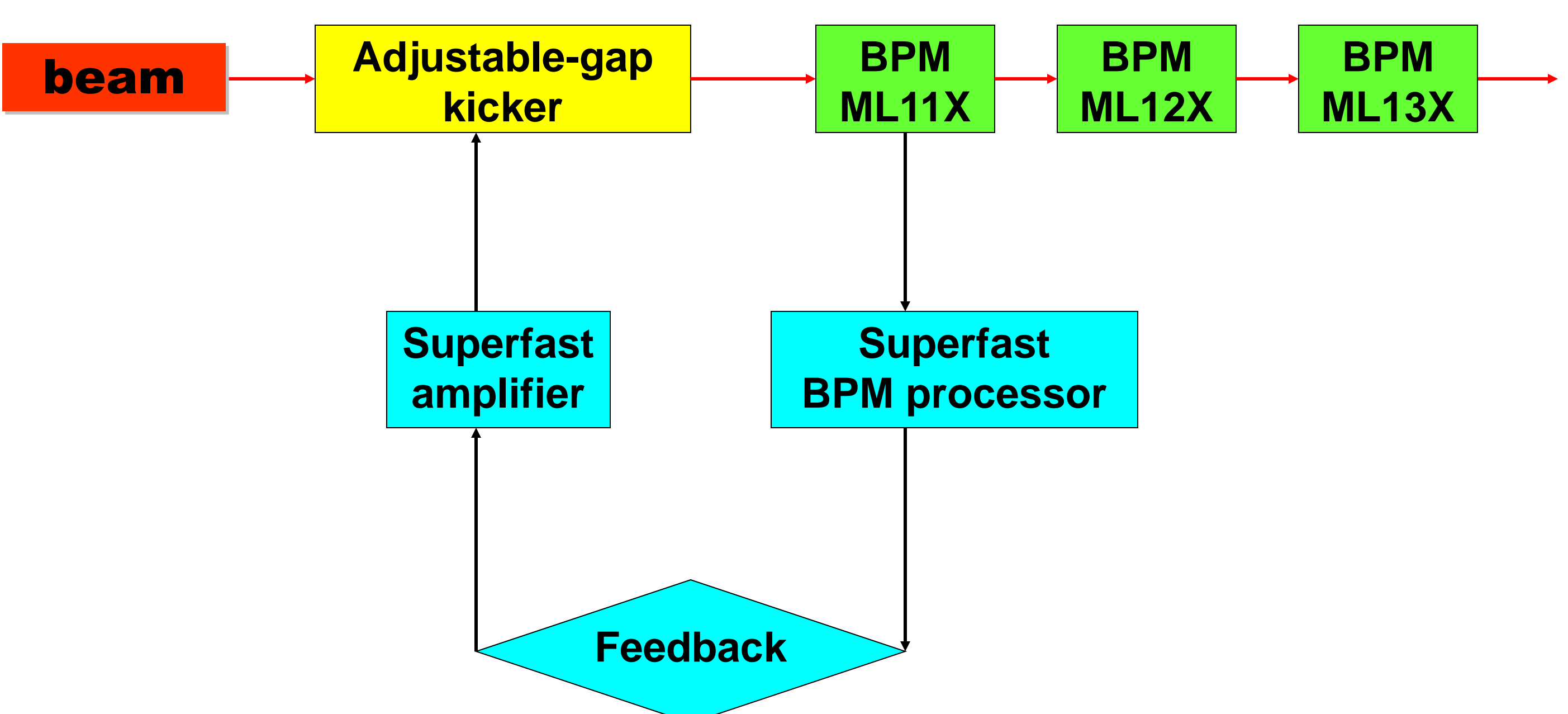
P.N. Burrows, G. Christian, C. Clarke, H. Dabiri Khah, T. Hartin,
 S. Molloy, G.R. White (Queen Mary, University of London)
 A. Kalinin (Daresbury Laboratory)
 C. Perry (Oxford University)
 J. Frisch, T. Markiewicz, D. McCormick, M. Ross, S. Smith, T. Smith (SLAC)

Linear Collider intra-train feedback concept:

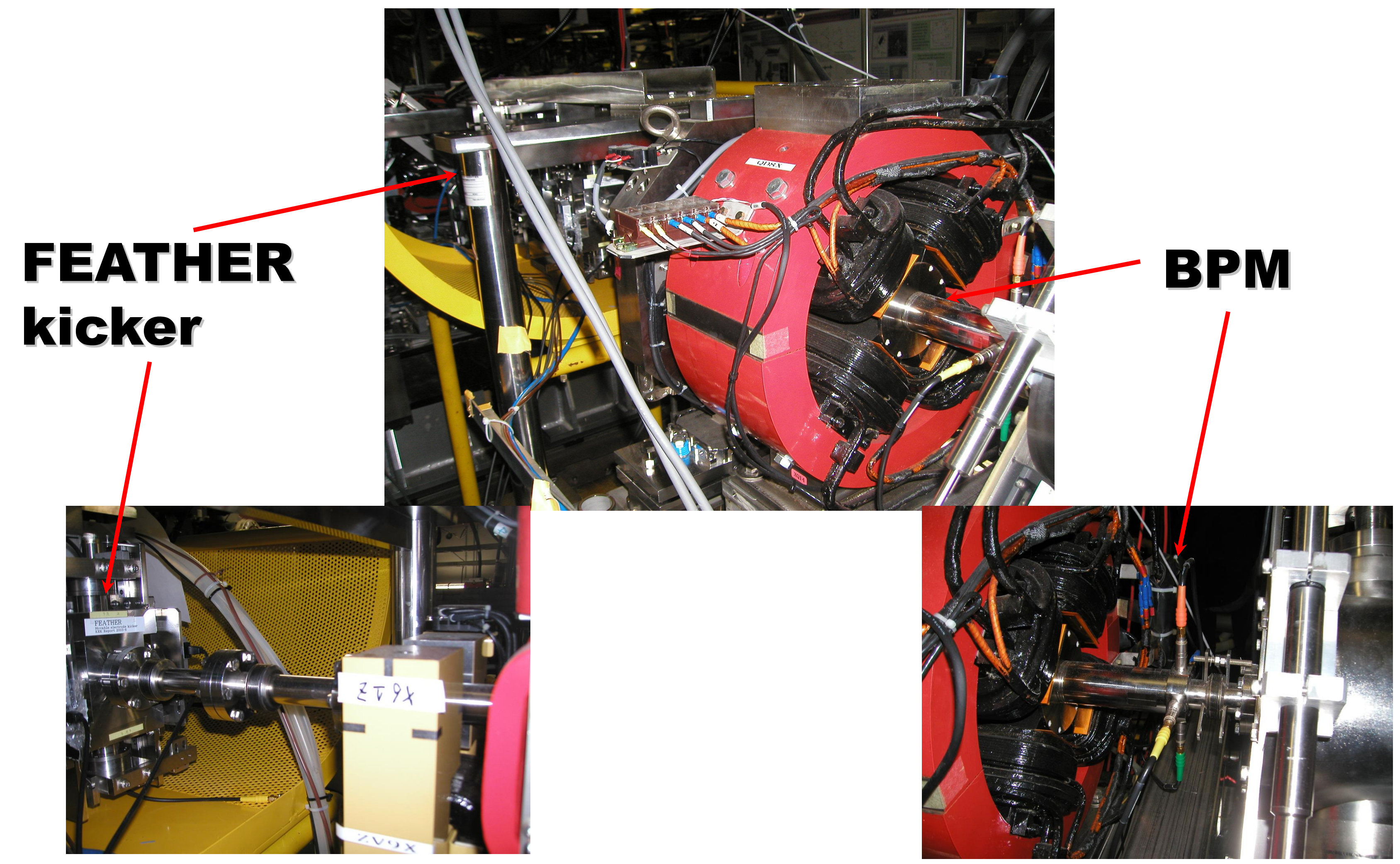


Detect position offset of incoming bunches early in train. Calculate correction and apply with kicker to later bunches

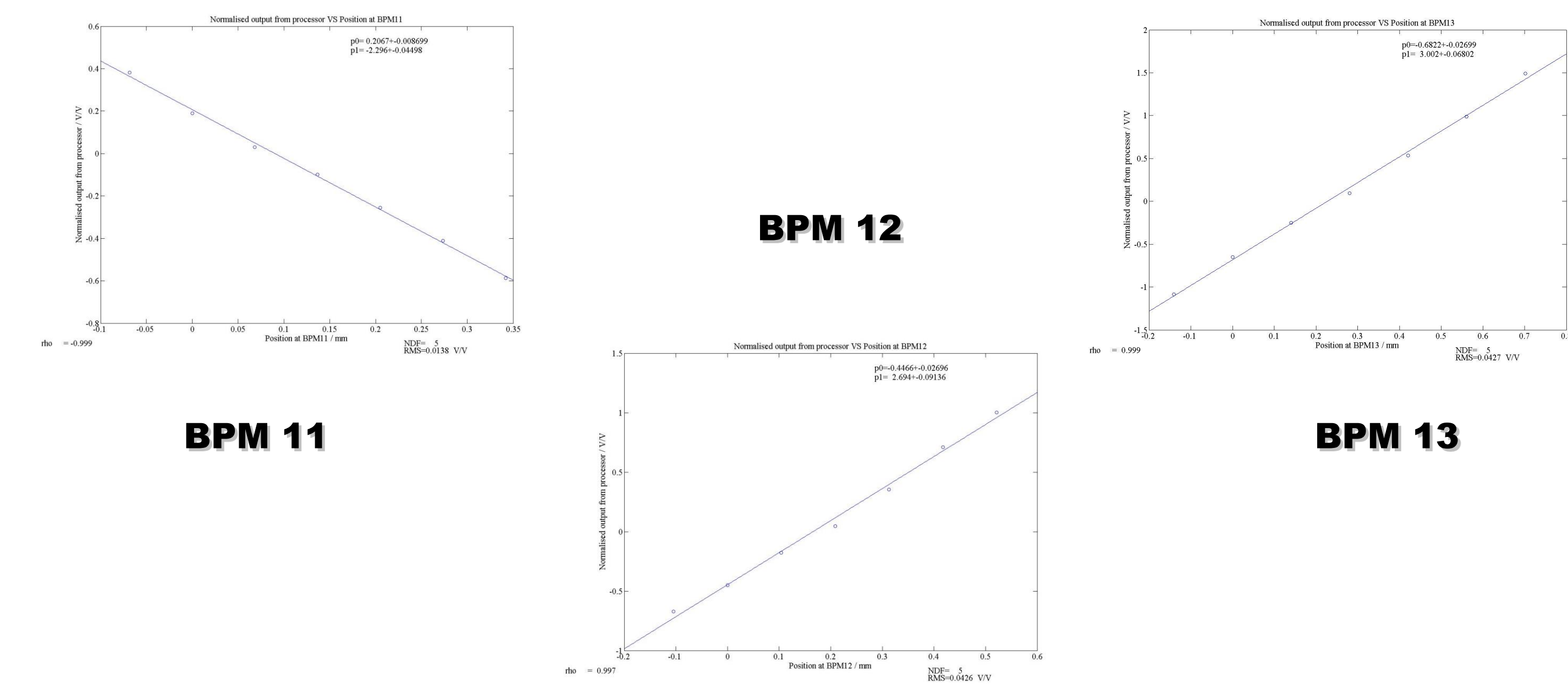
FONT3 prototype at KEK ATF:



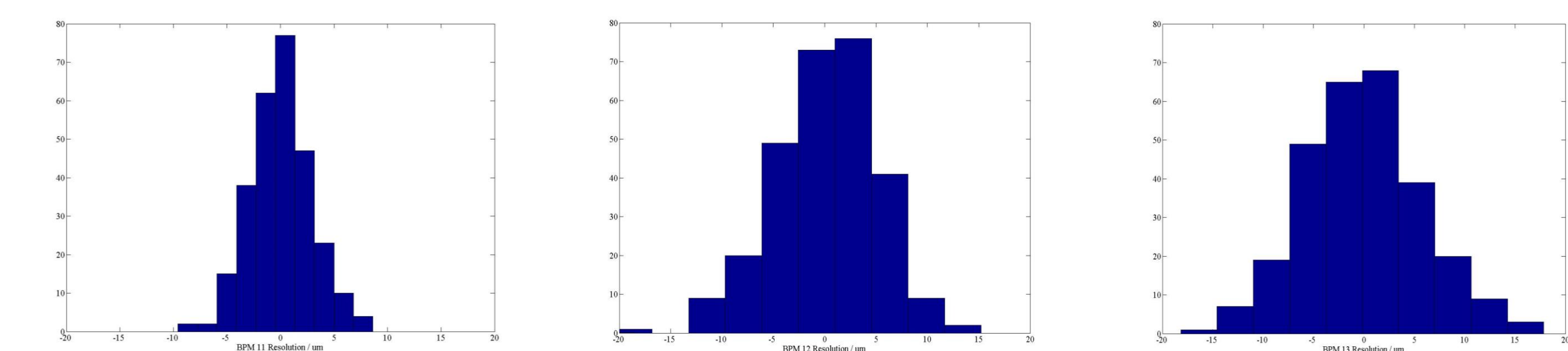
ATF extraction line:



Beam test results:

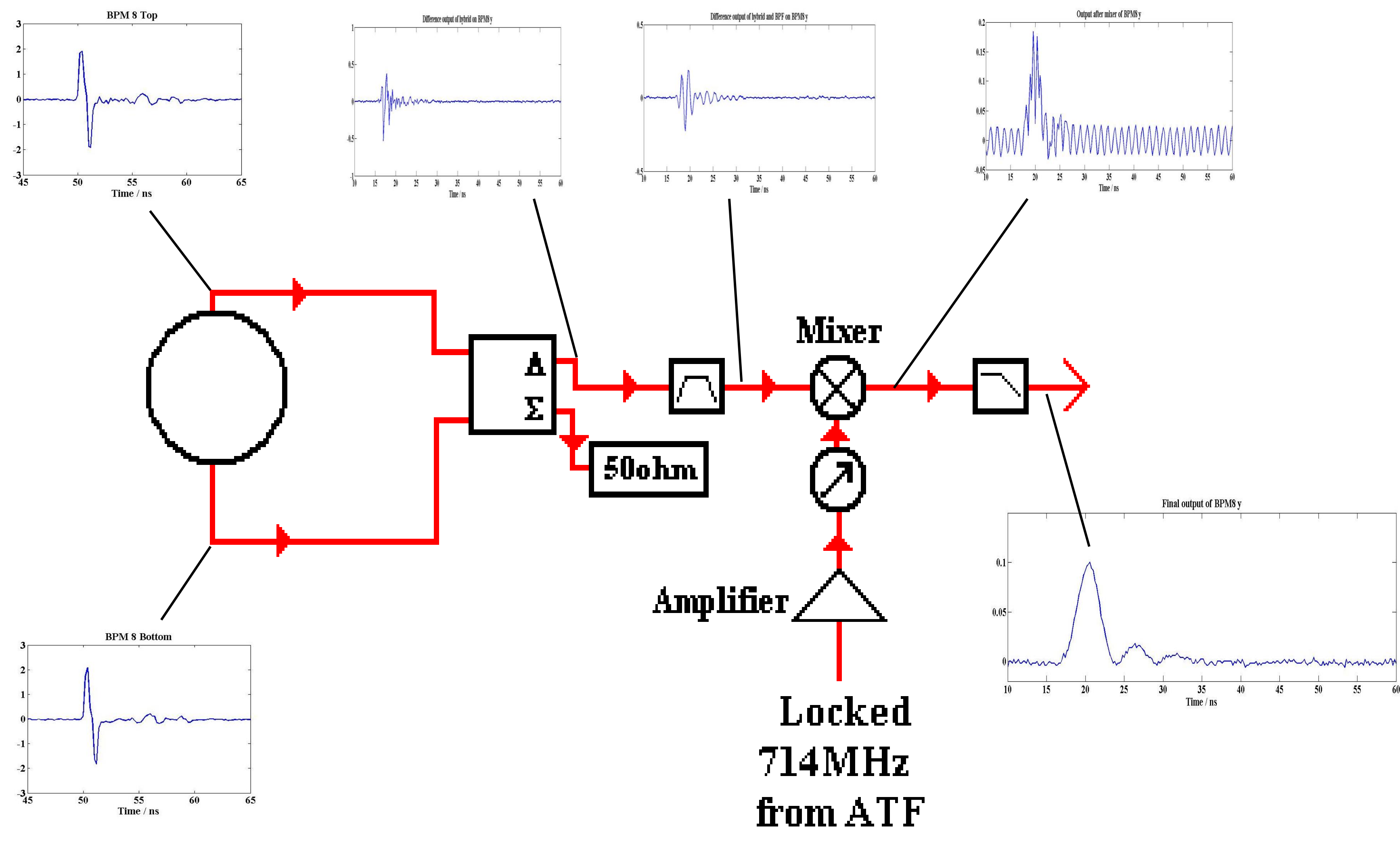


Distributions of residuals (240 beam pulses):



Resolution: 3-5 um

Signal processing:



Latency budget

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

BPM processor latency: 4.3 ns

