

# Booster/Linac Studies October 2002

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# Outline

- Booster low emittance studies results (Sereno)
- Booster software development/testing (Sereno, Shang, Soliday)
- BTS matching (Sereno, Emery)
- Linac to booster transport/matching using RF Gun 2 (Sereno)

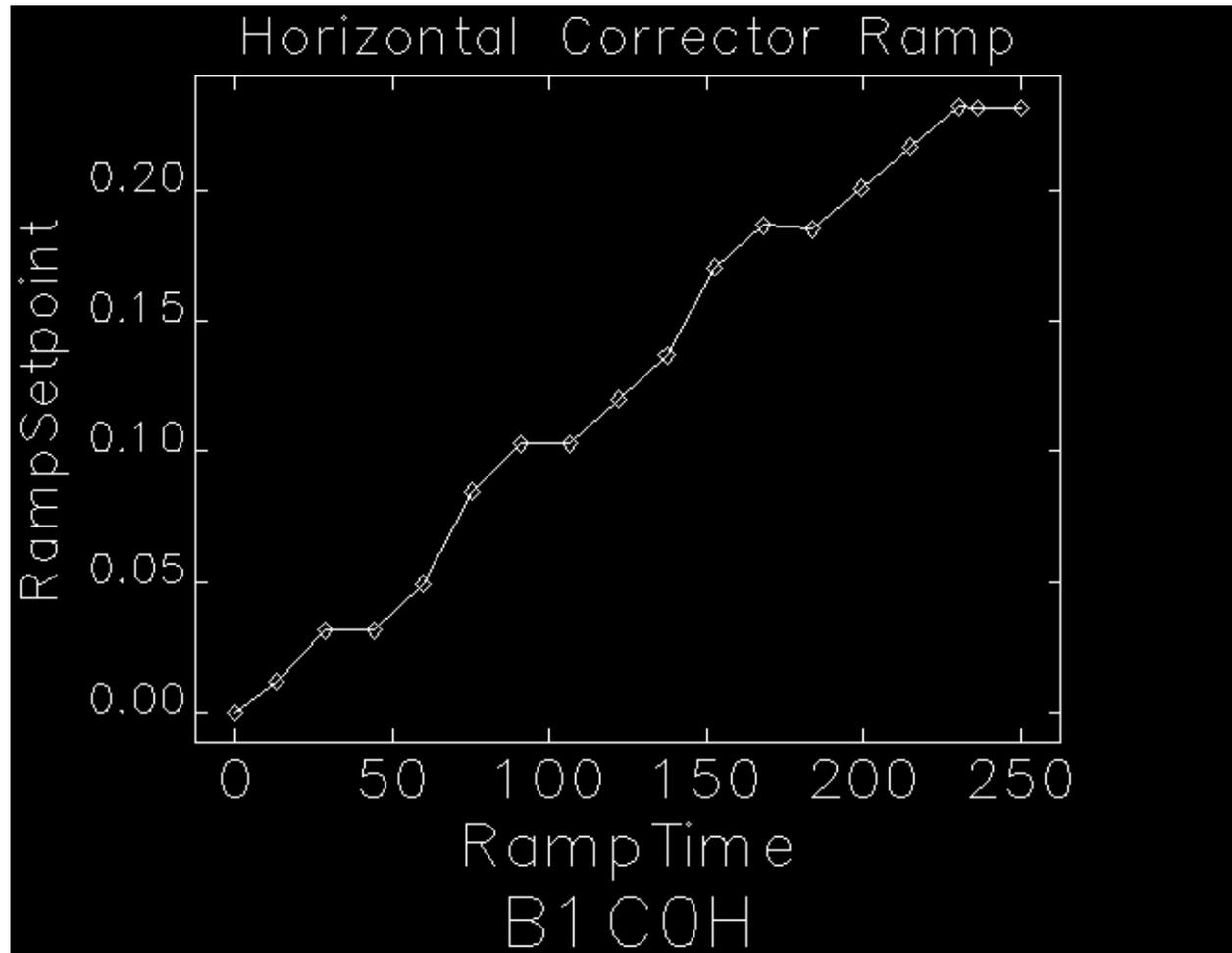
# Booster Low Emittance Studies

- Operations booster low emittance lattice
  - $\nu_x = 12.75, \nu_y = 9.80$
  - $\epsilon_x = 109 \text{ nm}$
- Corrected horizontal and vertical orbit at 15 equidistant time points along the ramp
- Installed new horizontal correction which improved booster efficiency to 100 %
- Reduced sensitivity to ramp/injection tuning

# Booster Software Development and Testing

- Continue booster orbit correction software development and testing (Shang)
- Migrate related booster software to standard tools (Emery, Sereno, Shang, Soliday)
  - Replace Bcontrol with sddscontrollaw
  - Implement BTS emittance/matching software

# New Horizontal Corrector Ramp



# Linac to Booster Injection Studies

- Use RF Gun 2, BC and PB emittance/matching
- Found a large betay in LTP (150 m) even after BC matching gave good match.
- Reason: L4 and L5 RF power did not correspond to lattice
- Optimized gun 2 phase/alpha current to get short bunch using L5 BL measurement (0.3 ps rms)
- Still could not see CTR signal