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Coherence Damper Tests

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Coherence Damper Tests

April 12, 1973

0630 - 0900

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The vertical coherence damper system consists of a pair of cathode followers at the B-3 electrodes feeding a difference amplifier whose output is fed to a driver circuit located at B-10. The latter is coupled to a two turn coil about 7' long located in the straight section. The seven magnet spacing produces ~~the~~ ^{an} $\approx \pi/4$ phase shift which is needed to damp the coherent betatron oscillations.

An overall damping rate of $\approx 1.9 \times 10^3 \text{ sec}^{-1}$ is available. Hence for a growth rate of 230 sec^{-1} at $\alpha = 1.67$ (observed on 4/6) we have ≈ 5 times the minimum gain necessary for damping.

After making the feedback polarity correct complete suppression of the coherence was obtained up to the maximum available intensity of 4.6×10^{12} (the coherence threshold being around 3.5×10^{12}). The remainder of the time was used to try and increase the machine intensity but with little success. At about 9am the linac developed troubles and the program was terminated.