

**Reducing Energy Spread for Long Bunch Train at SLAC**, F.-J. DECKER, D. FARKAS, L. RINOLFI<sup>\*</sup>, J. TRUHER, SLAC<sup>\*\*</sup> - The normal energy gain of the SLC RF system, using SLED cavities (SLAC Energy Development), can accelerate only about 100 ns beam pulse within an energy spread of 0.5% depending on the beam loading current. By applying two additional 180° phase inversions for about 20% of all SLC klystrons, the classical SLED pulse is flattened to achieve an energy spread of 0.5% over 240 ns. This scheme was developed for the fixed target experiment E-154, to study the neutron spin. It was used to run at beam energy of 48.7 GeV and beam current up to  $1 \cdot 10^{11}$  e- per pulse. This paper describes the beam loading compensation using early beam injection scheme and new RF phase inversions which have been implemented for the SLED devices. The experimental results, obtained during fall 1995, are compared to simulations. The results surpassed the initial requested beam qualities. A similar approach might be useful for future linear colliders with long bunch trains.

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