

Space Charge Phenomena in Mu Colliders,
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Theoretical examination is made of the space charge
phenomena in the collider ring of a Mu-Mu Collider
Complex. The situation involves an intense bunch
($\sim 10^{12}$ particles), a short bunch (~ 3 mm in length), a
small momentum compaction ($\sim 10^{-5}$), a rather large
impedance for the rf system (~ 2 v/pC/cell), and muons
only living for some hundreds of turns (~ 900).
Because of the low momentum compaction there are
only a few synchrotron oscillations during the muon
lifetime and, consequently, space charge phenomena
during the first few dozens of turns (~ 75) are similar to
those occurring in linacs. Beyond that time, the
phenomena are similar to that occurring in rings. The
use in rings of techniques such as BNS damping,
developed for linear colliders, will be discussed.
Analytic work and numerical simulation results will be
presented.

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