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Transverse-Control Algorithms for a Small Recirculating Heavy-Ion Accelerator* W. M. SHARP and G. W. KAMIN, *Lawrence Livermore National Laboratory.* A series of scaled experiments to test the concept of a recirculating induction accelerator is being carried out at the Lawrence Livermore National Laboratory. Despite the small size and low current and energy of the accelerator, these experiments pose the same problem of controling the transverse beam position as a driver for heavy-ion fusion. To allow realistic error tolerances on the strength and alignment of lattice elements, the experimental beam must be steered repeatedly using only transverse-position data from capacitive probes. However, the limited probe resolution and the lattice errors within steering modules complicate the calculation of steering signals. Here, steering algorithms are proposed that addresses this problem by using redundant monitors, shot-to-shot refinement of steering signals, and simultaneous optimization of several steering dipoles. The envelope code CIRCE is used to evaluate these algorithms.

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Submitted by:

William M. Sharp

Full Address:

Lawrence Livermore National Laboratory
P. O. Box 5508 L-440
Livermore, CA 94550

E-Mail Address:

sharp@hif.llnl.gov

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