

Abstract Submitted
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Space-Charge and Fringe-Field Effects in Simulations of Non-Scaling FFAGs¹ DAN ABELL, GEORGE BELL, ANDREY SOBOL, Tech-X Corp., ALESSANDRO RUGGIERO, DEJAN TRBOJEVIC, BNL, ETIENNE FOREST, KEK — Recent simulations of non-scaling fixed-field alternating gradient accelerators (FFAGs) suggest that magnet fringe-field effects are of signal importance. In addition, non-scaling FFAGs are sensitive to a slew of resonances during the acceleration ramp. We present simulations of possible non-scaling FFAG designs, focusing especially on the effects fringe-fields and space-charge, using newly developed capabilities in the code PTC². In particular, we study how fringe extent and other parameters affect important measures of machine performance. An important consideration—because it affects the amount of rf power required—will be the speed at which resonances must be crossed.

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²E. Forest, Y. Nogiwa, F. Schmidt, “The FPP and PTC Libraries”, Proc. ICAP’2006.

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