Abstract Submitted
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Cornell-BNL Electron Energy Recovery Linac FFAG Test Accelerator (CBETA) DEJAN TRBOJEVIC, STEVE PEGGS, SCOTT BERG, STEPHEN BROOKS, GEORGE MAHLER, FRANCOIS MEOT, NICHOLAOS TSOUPAS, HOLGER WITTE, Brookhaven National Laboratory, GEORG HOFFSTAETTER, IVAN BAZAROV, CHRISTOPHER MAYES, RITCHIE PATTERSON, KARL SMOLENSKI, YULIN LI, JOHN DOBBINS, Cornell University, BNL TEAM, CORNELL UNIVERSITY TEAM — A novel energy recovery linac (ERL) with Non-Scaling Fixed Field Alternating Gradient (NS-FFAG) racetrack is being constructed as a result of collaboration of the Cornell University with Brookhaven National Laboratory. The existing injector and superconducting linac at Cornell University are being installed together with a single NS-FFAG arcs and straight section at the opposite side of the linac to form an ERL system. The 6 MeV electron beam from injector is transferred into the 36 MeV superconducting linac and accelerated by four successive passes: from 42 to 150 MeV using the same NS-FFAG structure made of permanent magnets. After the maximum energy of 150 MeV is reached, the electron beam is brought back to the linac with opposite Radio Frequency (RF) phase and with 4 passes electron energy is recovered and brought back to the initial energy of 6 MeV. This is going to be the first 4 pass superconducting ERL and the first NS-FFAG permanent magnet structure to bring the electron beam back to the linac.

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