Abstract Submitted
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Design Studies for the induction cells for NDCX-II[1] J.W. KWAN, A. FALTENS, J.Y. JUNG, E.P. LEE, M. LEITNER, B.G. LOGAN, W.L. WALDRON, LBNL, A. FRIEDMAN, LLNL — The Heavy Ion Fusion Science Virtual National Lab is funded to build NDCX-II, at LBNL for high energy density (warm dense matter) and IFE target physics research. The goal is to produce Li+ ion beam with pulse length ∼1 ns, energy ∼3 MeV, beam charge per pulse ∼20 nC, and rep rate ∼0.02 Hz. The linac will reuse induction cells and Blumleins from the decommissioned Advanced Test Accelerator (ATA) at Lawrence Livermore National Laboratory. Among other changes, the original dc solenoid magnets will be replaced with new 2-3 T pulsed solenoids. The machine will have about 30 cells, a neutralized drift compression section, and a final focusing solenoid (8 T) followed by a target chamber. The total length of the machine will be about 15 m. One critical need is to avoid premature saturation of the induction cores due to the stray field generated by the pulsed solenoids. Another issue is beam steering due to misalignment of the magnetic axis. Testing of a prototype cell will be done to characterize the pulsed power and magnetic performance. These results will be presented in the meeting.

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