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Integrated Experiments for Heavy Ion Fusion*

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Abstract

We describe the next set of experiments proposed in the U.S. Heavy Ion Fusion Virtual National Laboratory, the so-called Integrated Beam Experiment (IBX). The purpose of IBX is to investigate in an integrated manner the processes and manipulations necessary for a heavy ion fusion induction accelerator. The IBX experiment will demonstrate injection, acceleration, compression, bending and final focus of a heavy ion beam at significant line charge density. Preliminary conceptual designs are presented and issues and tradeoffs are discussed. Plans are also described plans for the step after IBX, the Integrated Research Experiment (IRE), which will carry out significant target experiments.

Keywords: Fusion; Heavy Ion; Inertial fusion; Driver; Accelerator; Systems model