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### Title

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The Integrated Beam Experiment-- The Next Step for Heavy Ion Fusion\*

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The U.S. Heavy Ion Fusion Program is completing a 2-decade effort of small-scale experiments and analysis to explore the beam manipulations and non-neutral plasma physics of the intense beams necessary for a driver. The next step, a proof-of-principle experiment called the “Integrated Beam Experiment” (IBX) is in the design stage. It would integrate, for a single beam, all the beam physics from source to target, including beam production, acceleration, interaction with electrons and gas, compression, neutralization, and final focus. Present designs call for a  $K^+$  beam accelerated in an induction linac to 5-10 MeV. We present design studies, including PIC code studies of beam behavior.

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