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Development of Diagnostics for the neutralized ion beam drift compression experiments (NDCX)

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Abstract
Ion beam neutralization and drift compression experiments are designed to study the feasibility of using compression high energy density ion beams for high energy density physics (HEDP) and Fusion Energy research. In this experiment an ion beam of approximately 300kV, 30mA, K+ is used and compressed into nsec duration by a velocity tilt core and mm size range by a one meter-long plasma column. We are developing several fast diagnostics, such as Faraday cup, wire current monitor (measured response >0.5nsec), Fast photo multipliers system and gas scintillator to measure short beam duration, and to use in the NDCX experiments. Simulation and experimental data of the diagnostic will be presented.