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The Heavy-Ion Fusion Sciences Virtual National Laboratory is pursuing an approach to target heating experiments in the Warm Dense Matter regime, using space-charge-dominated ion beams that are simultaneously longitudinally bunched and transversely focused. Axial compression leading to ~100X current amplification and simultaneous radial focusing have led to encouraging energy deposition approaching, but still short of, the intensities required for eV-range target heating experiments. We present measurements from the Neutralized Drift Compression Experiment to reach the necessary higher beam intensities, including: (1) axial compression and radial focusing; (2) spatial and temporal distribution of energy deposition at the target plane; and (3) centroid motion of the beam spot through the pulse.

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