

Abstract Submitted  
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**Designing Neutralized Drift Compression for Focusing of Intense Beam Pulses in a Background Plasma**<sup>1</sup> IGOR D. KAGANOVICH, MICHAEL DORF, EDWARD A. STARTSEV, RONALD C. DAVIDSON, Princeton Plasma Physics Laboratory — Neutralized drift compression offers effective particle beam focusing and current amplification. In the neutralized drift compression method, a linear radial and longitudinal velocity drift is applied to a beam pulse, so that the beam pulse compresses during its drift in the focusing section. The beam intensity can increase more than 100 times in both radial and longitudinal directions, totaling more than 10,000 times increase in the beam density during this process. The optimal configuration of focusing elements to mitigate a time-dependant focal plane will be discussed. Self-electric and magnetic fields can prevent tight ballistic focusing and have to be neutralized by supplying neutralizing electrons. The source of electrons can come from emitting electrodes, gas ionization by the beam ions, plasma plug region, and volumetric plasma. This paper presents a survey of the present numerical modeling techniques and theoretical understanding of plasma neutralization of intense particle beams.

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