

Abstract Submitted  
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**Pulse Compression in Magnetized Plasmas**<sup>1</sup> YUAN SHI, NATHANIEL J. FISCH, HONG QIN, Princeton Plasma Physics Laboratory — Laser amplification using Raman or Brillouin backscattering in unmagnetized plasmas is possible only within a window in the intensity-frequency space. However, by applying an external magnetic field transverse to the direction of laser propagation, it is possible to shift this operation window towards high frequency and low intensity side of the parameter space. The compression of laser pulses, whose intensities and frequencies are outside the unmagnetized operation window, might now be made possible by mediating the parametric interaction using waves that are only present in magnetized plasma. This technique introduces new technological challenges in producing the requisite strong magnetic field that may be compared to challenges in producing high density uniform plasmas.

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