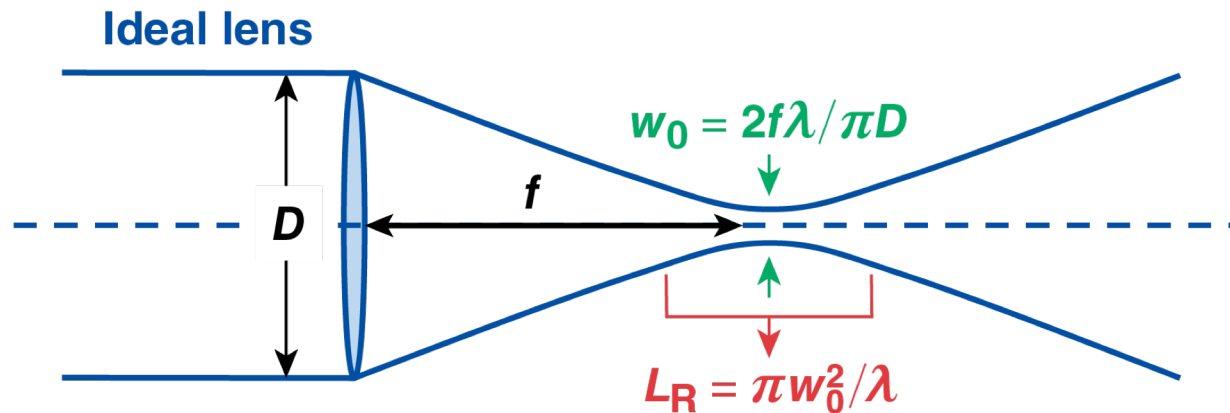


Spatiotemporal Control of Laser Intensity for High Performance Plasma-based Accelerators

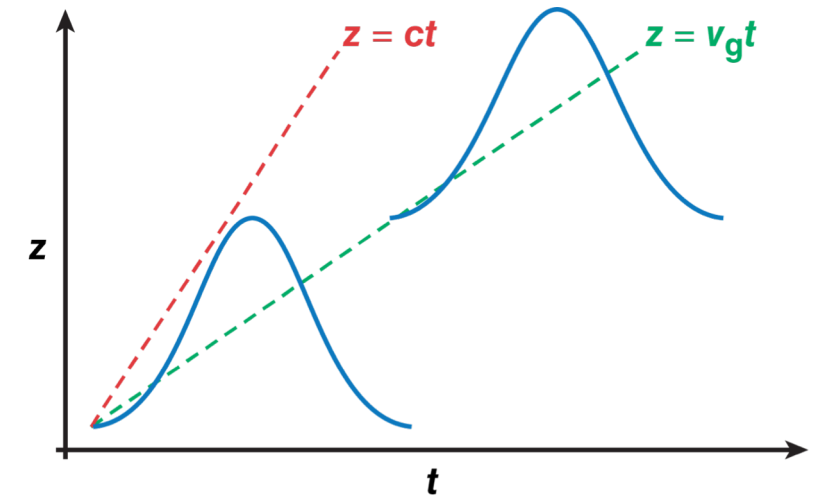
Advanced accelerators and radiation sources require laser pulses that can

1. Maintain a high intensity over an extended distance



E28619b

2. Phase or velocity match



E28619c

Conventional optics and laser pulses limit the efficacy of advanced accelerators and radiation sources

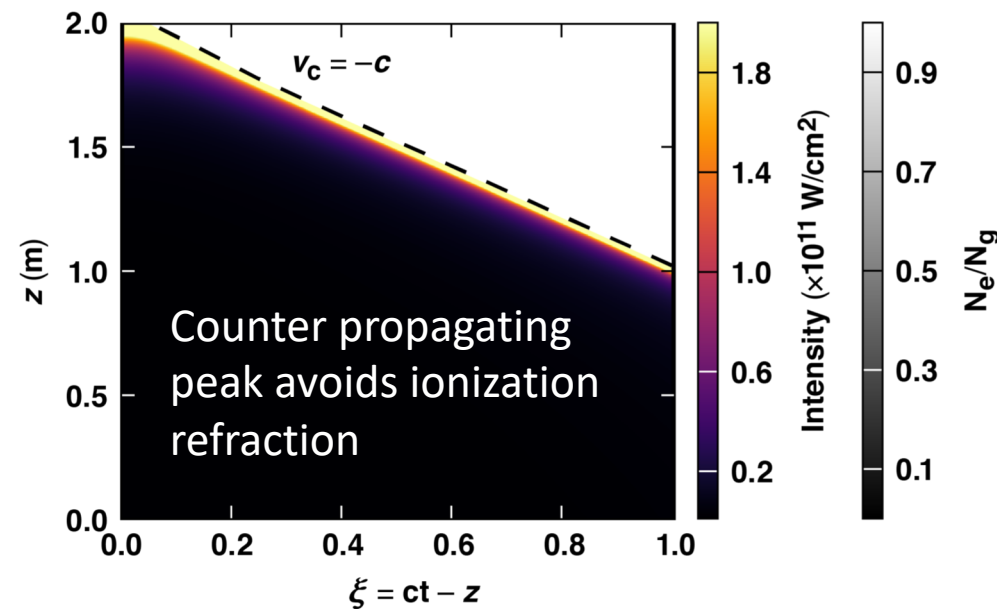
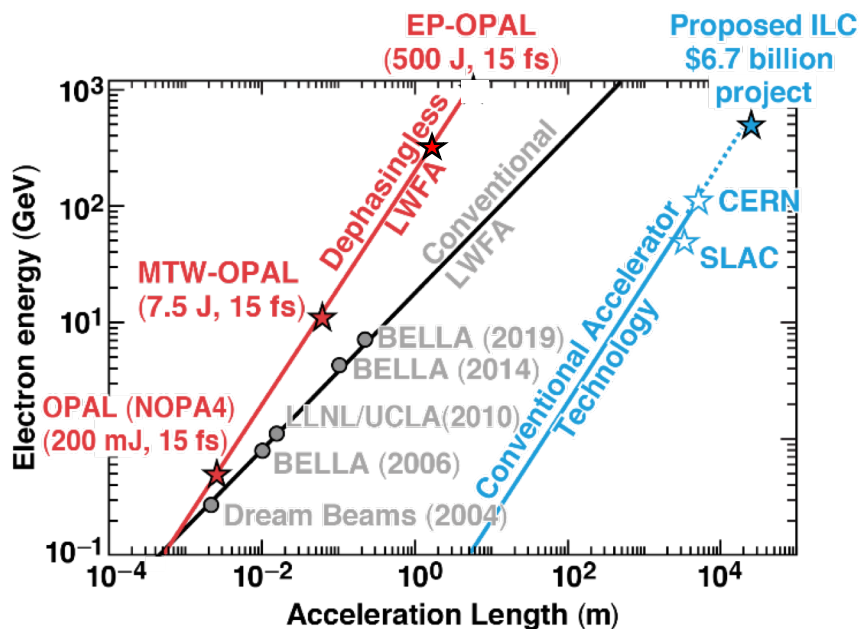
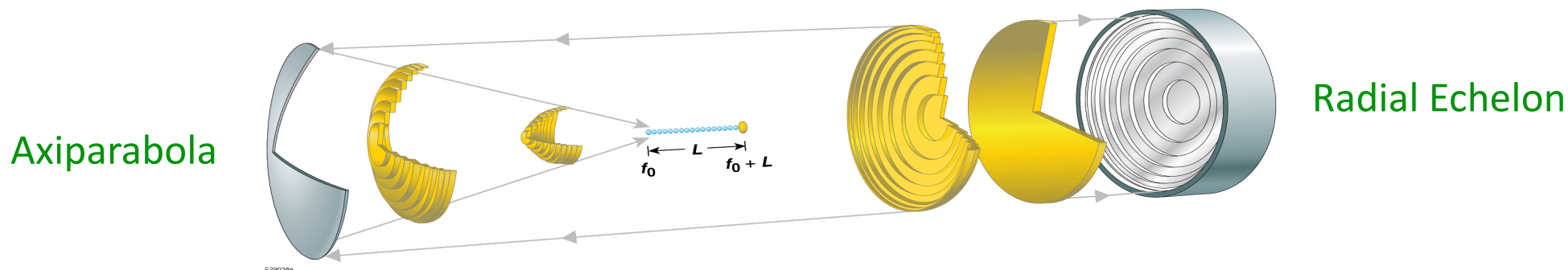
J. Palastro, N. Vafaei-Najafabadi, C. Schroeder, A. Debus, A. Arefiev, E. Campbell, E. Esarey, D. Froula, A. Irman, B. Malaca, U. Schramm, J. Shaw, J. Vieira, K. Weichman, and J. Zuegel



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Spatiotemporally structured laser pulses can deliver controllable velocity intensity peaks over long distances, improving and enabling advanced accelerators and radiation sources



Plasma waves driven at c eliminate dephasing and decrease the length of LWFA

Counterpropagating intensity peaks allow for the formation of long plasma channels