

Abstract Submitted
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Persistent Spatially-Driven Kinetic Waves in Pure Electron Plasmas¹ WILLIAM BERTSCHE, U. C. Berkeley Physics, JOEL FAJANS, U. C. Berkeley Physics, BEDROS AFEYAN, Polymath Research Inc. — For the first time, high amplitude ($\Delta n/n \approx 40\%$), high Q (up to 100,000) Bernstein, Greene, and Kruskal modes have been controllably excited in a non-neutral electron plasma with a spatially localized electrostatic drive. The modes are created by sweeping an excitation voltage downwards in frequency, thereby dragging a phase space “bucket” of low density into the bulk of the plasma velocity distribution. The modes have no linear limit and are intrinsically kinetic in nature. Preliminary experiments using a fixed- k drive for these waves and comparison with kinetic electrostatic electron waves investigated in neutral laser-plasma systems will be presented.

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