

Abstract Submitted  
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**Suppression of parasitic noise by strong Langmuir wave damping in quasitransient regimes of backward Raman amplification of intense laser pulses in plasmas.**<sup>1</sup> VLADIMIR MALKIN, NATHANIEL FISCH, Princeton University — Currently built powerful soft x-ray sources may be able to access intensities needed for backward Raman amplification (BRA) of x-ray pulses in plasmas. However, high plasma densities, needed to provide enough coupling between the pump and seed x-ray pulsed, cause strong damping of the Langmuir wave that mediates energy transfer from the pump to the seed pulse. Such damping could reduce the coupling, thus making efficient BRA impossible. This work shows that efficient BRA can survive despite the Langmuir wave damping significantly exceeding the linear BRA growth rate. Moreover, the strong Langmuir wave damping can suppress deleterious instabilities of BRA seeded by the thermal noise. This shows that it may be feasible to observe x-ray BRA for the first time soon.

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