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Oscillation Modes of a Relativistic Drifting Cold Plasma
MICHAEL MEYERS, CHENGKUN HUANG, B.J. ALBRIGHT, Los Alamos National Laboratory — Examining the behavior of a drifting plasma could shed light on proposed computational gains of boosted frame simulations [1] and allow insight to electron-ion acceleration processes associated with ultra intense short pulse lasers [2]. The cold fluid approximation is a simple way to model such a drifting plasma, assuming zero thermal distribution. Electrostatic and electromagnetic dispersion relations have been obtained for the case of cold unmagnetized plasma and are checked for agreement with particle in cell (PIC) simulations. The roots obtained from the dispersion relations will be discussed and compared with the results found via a kinetic treatment.

[1] J.-L. Vay, Physical Review Letters 98, 130405 (2007).
[2] L. Yin et al., Physics Of Plasmas 14, 056706 (2007).

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