

Abstract Submitted
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Particle Acceleration in Electromagnetic Dominated Outflows with Background Plasma and Clumps KOICHI NOGUCHI, EDISON LIANG, Rice Univ. — The effect of background plasma on particle acceleration via Poynting fluxes is studied in 3D PIC simulation of electron-positron plasmas. When strongly magnetized plasma at the center expands to background low-temperature electron-positron plasma, EM wave front accelerates background plasma, and captures particles in the Ponderomotive potential well. When a low-density clump is embedded in the background plasma, particles in the clump are also accelerated and captured in the potential well. In both cases, we do not observe any instability, and the momentum distribution of background and clump forms a power law of slope close to -1 with a sharp peak in the middle. We also discuss the ion-electron background and clump case.

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