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Sustained Particle Acceleration by Poynting Flux EDISON LIANG, KOICHI NOGUCHI, Rice University, SCOTT WILKS, LLNL — We review particle acceleration by electromagnetic (EM)-dominated outflows (Poynting flux) and potential applications to astrophysical explosions. Of particular interest is the sustained comoving acceleration of electron-positron (e+e-) pairs by intense EM pulses in overdense plasmas. Such acceleration may be relevant to GRBs and pulsar winds. We will present 2-and-3D PIC simulation results that include radiative effects, hybrid e+e- and e-ion plasmas, interaction with ambient plasmas, and highlight the key differences between Poynting flux acceleration and shock acceleration. Connections with laboratory experiments using ultra-intense lasers will also be discussed.

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