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Fermion production in inhomogeneous electric fields

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We investigate fermion production in space- and time-dependent electric fields in 1+1 dimensional QED using real-time lattice techniques. We compute the non-equilibrium time evolution of gauge invariant observables and investigate the decay of the field due to the backreaction mechanism. The latter allows us to discuss the striking phenomenon of a linear rising potential building up between produced fermion bunches after the initial electric pulse has ceased.

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