

# LARGE-AMPLITUDE, PAIR-CREATING OSCILLATIONS IN PULSAR AND BLACK HOLE MAGNETOSPHERES

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We present a time-dependent model for pair creation in a pulsar magnetosphere, and demonstrate that the electric field in a pulsar gap is likely to be determined primarily by inductive effects rather than electrostatic effects. We show that for a charge-starved initial condition the system, following a short exponential phase of pair creation burst, develops large amplitude oscillations that control the pair creation process. A positive feedback keeps the system stable, such that the average pair creation rate balances the loss rate due to pairs escaping the magnetosphere.