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Gap suppression and delocalization of 1D electron gas driven by a strong AC electric field KATHLEEN E. HAMILTON, LEONID P. PRYADKO, UCR — We will argue that a strong AC electric field can coherently suppress a band gap in a high-mobility one-dimensional wire. At half-filling, the expected effect is delocalization of the carriers, in contrast to Stark localization at low frequencies, or Dynamical Destruction of Tunneling at frequencies exceeding the bandwidth. Another effect of the gap suppression is the doubling of the Bloch oscillations' period. We support these expectations with numerical simulations of the non-linear current response for several model systems driven by a combined high and low-frequency electric field.

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