

Abstract Submitted  
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**Coulomb gap in one dimension**<sup>1</sup> M. M. FOGLER, UCSD — The density of states (DOS) of a disordered system with localized electrons is studied theoretically in one dimension. Using a renormalization-group method it is shown that in the absence of screening a suppression of the DOS — the Coulomb gap — appears near the Fermi level. The Coulomb gap is logarithmic, in agreement with previous work; however, the numerical coefficient differs by the factor of two. This resolves the lingering discrepancy between earlier analytical and numerical results for this problem. Manifestations of the Coulomb gap in transport, tunneling, and photoemission properties of (quasi) one-dimensional systems (nanotubes, nanowires, nanoribbons, etc) are discussed.

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