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Differential Conductance Strength in Majorana Devices JOHN STENGER, TUDOR STANESCU, West Virginia University — Recent differential conductance experiments on semiconductor nanowires proximity coupled to s-wave superconductors have shown several interesting features, including signatures of the induced and bulk gaps and zero-bias peaks. We describe theoretically these features using a tight binding model within a non-equilibrium Green function formalism. In particular, we study the dependence of the differential conductance on various model parameters and identify the low-energy states responsible for different experimentally-observed features. We find that the barrier height, as well as band mixing and the semiconductor-superconductor coupling can modify the strength of the conductance features. By changing these and other parameters we are able to distinguish between various features and suggest ways to strengthen certain features that might be too weak to recognize otherwise.

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