Abstract Submitted
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Graphene interferometry[1] DANIEL GUNLYCKE, CARTER WHITE, Naval Research Laboratory — Ballistic transport calculations of graphene connected to two contacts are presented. The calculations are based on the nearest-neighbor, tight-binding approximation but are otherwise treated exactly within a Green function formalism. It is shown that under certain circumstances stable collective resonances emerge from a resonant structure that in general could be quite complicated. These collective resonances originate from a large number of non-equivalent conduction channels and are evenly spaced, except for a region close to the Fermi level. The separation between neighboring collective resonances depends to first order only on the contact separation. Their contrast, on the other hand, is affected by the width of the sample, temperature, and unevenness in the contact interfaces. Despite the existence of many potential sources that could degrade the collective resonances, these resonances could still prove to be observable experimentally.

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