Abstract Submitted
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**Electric-field-induced destruction of quasi-Landau levels in AA-stacked bilayer graphene nanoribbons**[1] HSIEN-CHING CHUNG, YU-MING WANG, MING-FA LIN, Department of Physics, National Cheng Kung University, Tainan 70101, Taiwan — The magneto-electronic properties of AA-stacked bilayer zigzag graphene nanoribbons are investigated by the Peierls tight-binding method. In the presence of magnetic fields, Landau quantization leads to the partial dispersionless subbands, which are called quasi Landau levels (QLLs). For bilayer zigzag nanoribbons, there are two groups of QLLs with two pairs of partial flat subbands. A perpendicular electric field, serving as the top gate, is expected to push these QLLs to higher state energies and to split the flat subbands. Wave functions, providing more information on the electronic states, are employed to analyze the mixing Landau and localized states on the flat subbands. And the electron distributions of Landau subbands are also be presented. The density of states are discussed at last in detail. The aforementioned predicted properties could be verified through optical spectroscopy and scanning tunneling spectroscopy.

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