

Abstract Submitted
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Zigzag phosphorene nanoribbons: one dimensional resonant tunnelling in two dimensional atomic crystals CARLOS PAEZ, ANA PEREIRA, University of Campinas, DARIO BAHAMON, Mackenzie Presbyterian University, PETER SCHULZ, University of Campinas — We theoretically investigate phosphorene zigzag nanoribbons as a platform for constriction engineering. In the presence of a constriction at one of the edges, quantum confinement of edge protected states reveals breit-wigner-like resonant tunneling, if the edge is uncoupled to the other. If the constriction is narrow enough to promote coupling between edges, it gives rise to fano-like as well as anti-resonances in the transmission spectrum. These effects are shown to mimic an atomic chain like behavior in a two dimensional atomic crystal.

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