# Bilayer graphene topological states scattering

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Abstract

Kink gate potentials applied to bilayer graphene give rise to topological confined states. Electrons in these states display valley-momentum locking, which makes them attractive for topological valleytronics. We study [1] two topological king-antikink constrictions, namely, a quasi-one-dimensional channel working as a quantun point
contact and a detaching loop acting as a quantum dot. For the former, we find an anomalous quantized conductance; for the latter, we find that the conductance curves gives information on the system energy spectrum. Interestingly, in the presence of tiny magnetic field the device can work as a valley filter.

References

[1] N. Benchtaber, D. Sanchez and L. Serra, arXiv:2103.13323 (2021).

Figures

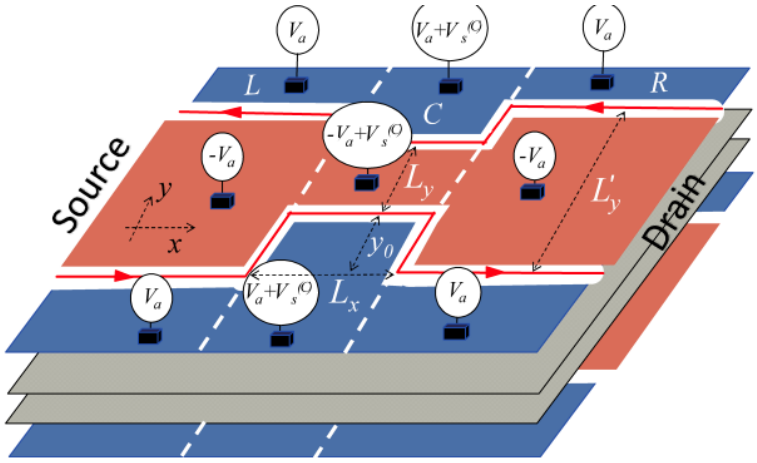


**Figure 1:** Schematic of a bilayer graphene kink-antikink system with lead regions (L and R) and a central scatterer (C).