

# Topological Correlated States in Moiré Graphene

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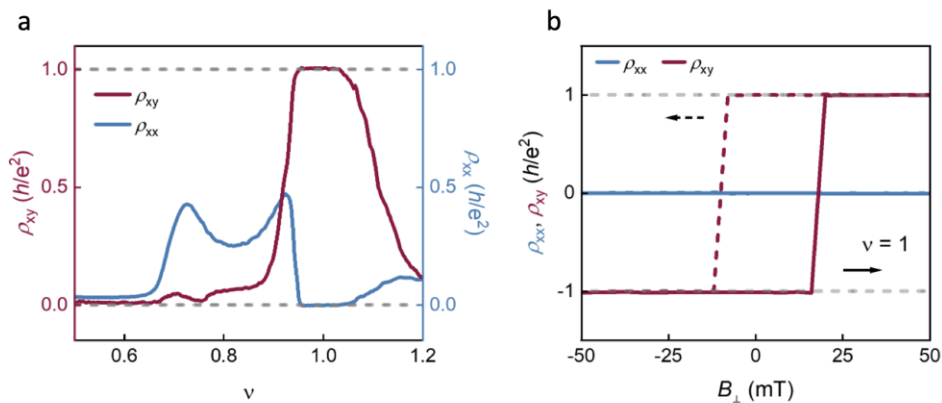
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In crystalline solids, the interplay between topology and interactions can lead to various exotic topological correlated states, i.e., the recently discovered fractional Chern insulators (FCIs). Graphene based topological flat-bands provide a clean and highly tunable platform to investigate these states. In this talk, I will introduce our recent experiments on the observation of FCIs and other emergent correlated phenomena in rhombohedral hexalayer graphene (RHG)/hBN moiré superlattices. I will also talk about our recent results on the unconventional Chern insulators in magic angle bilayer graphene and twisted multilayer graphene systems.

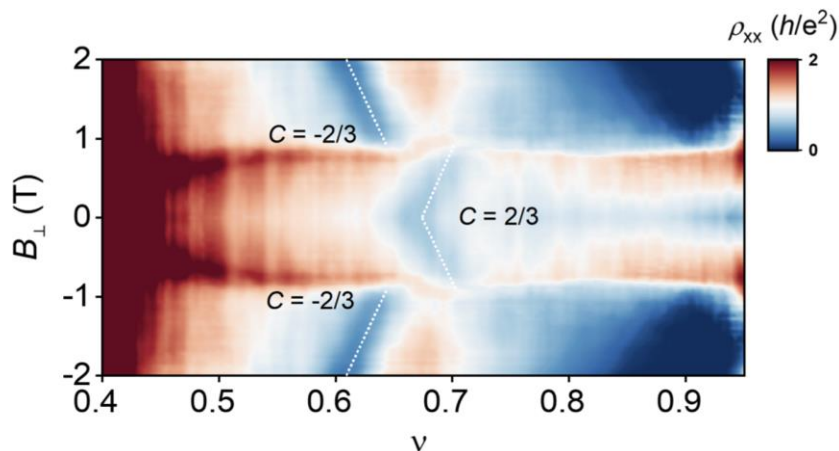
## References

- [1] J. Xie, et al, arXiv:2405.16944. (Nature Materials, in press)
- [2] Z. Zhang, et al, arXiv:2408.12509
- [3] W. Wang, et al, Physical Review Letters 132, 246501 (2024).

## Figures



**Figure 1:** Integer quantum Hall effect at  $\nu=1$  in hexalayer graphene/hBN moiré superlattices.



**Figure 2:** Tunable fractional Chern insulator at  $\nu=2/3$ .