

Orbital susceptibility of the twisted bilayer–trilayer graphene

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Since the discovery of twisted 2D moiré systems, there has been significant interest due to their rich phenomena, including correlated phases, superconductivity, the fractional quantum Hall effect, and ferromagnetism. While many transport experiments have been conducted to explore the electronic properties of these systems, they primarily focus on responses to electric fields. Recently, SQUID-On-Tip (SOT) techniques have been applied to investigate magnetic responses, particularly orbital magnetic responses. In this work, we focus on the orbital susceptibility of twisted bilayer–trilayer graphene. We have identified several intriguing features at high-symmetry points. Our predictions provide concrete guidance for future experiments targeting the interplay between topology, electron correlations, and orbital magnetism in tunable moiré quantum matter.

References

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