Quantum Information Electronics Division, Quantum Condensed Matter Research Group
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Electronic properties of graphene, superconductors and other condensed matter systems

Objective

Achieving a better understanding of the electronic properties of graphene, superconductors, and other condensed matter systems.

Summary of Research Activities

- Research done on various aspects of electronic properties of graphene, superconductors, and other condensed matter systems.
- Topics studied include electron transport, electronic phase separation, spin-orbit coupling, vortices in superconductors, Majorana fermions, among others.
- For example, a very long comparative study was performed between ballistic charge transport in graphene and light propagation in periodic dielectric structures with metamaterials. This because of our long-standing interest in finding analogies, commonalities, and links between various apparently-unrelated problems (especially electronic and photonic systems, because our research has mostly focused on them).

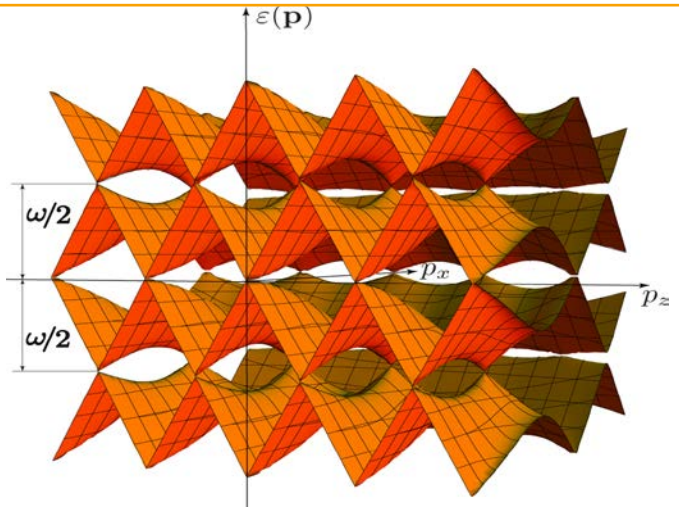

Figure: Floquet spectra of quasiparticles in strongly irradiated graphene. PRB 88, 241112(R) (2013). PRB Editor's suggestion.

Publications

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