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Creating new THz Photodetectors with Topological Semimetals

Recent advances in understanding Berry curvature effects have shown that the topological properties and electronic band structure of noncentrosymmetric semimetals can be harnessed to achieve quantum-limit THz detection, overcoming traditional limitations through giant nonlinear optoelectronic and optical effects. These breakthroughs open new pathways for quantum THz sensing, light sources, and frequency transduction applications. In this talk I will discuss the theoretical background and experimental progress made so far toward realizing these quantum devices.

Topical Area

Hard matter: energy materials

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