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Michelson Interferometry of High-order Harmonic Generation in Solids

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High-order harmonic generation in solids has attracted intensive investigations and many different features have been identified and interpreted. In this Letter, we find a distinct and clean interference pattern in the high-energy end of the spectrum by varying the maximum value of the vector potential of a driving pulse. This pattern can only be observed when the quasi-electron of the solid can be driven to the boundary of the Brillouin zone. Our results are based on the exact numerical solution to the time-dependent Schrödinger equation of the quasi-electron in solids and can be analytically interpreted with a model based on the principle of the Michelson interferometer. Our finding may find potential applications in imaging of the dispersion relation or topological structure of the energy bands in solids.

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