20
标题: Nonequilibrium BCS State Dynamics Induced by Intense Terahertz Pulses in a Superconducting NbN Film
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摘要: Using terahertz (THz) pump-THz probe spectroscopy, we have investigated the dynamics of the nonequilibrium BCS state in a superconducting NbN film after the impulsive photoinjection of high-density Bogoliubov quasiparticles. The superconducting state rapidly changes within the duration of the monocycle THz pump pulse (1.6 ps). The complex optical conductivity spectrum in the nonequilibrium BCS state significantly deviates from that in the equilibrium state. The observed spectral features are qualitatively well described by the effective medium theory that assumes the formation of normal state patches embedded in a superconducting matrix.
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