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Abstract:We show that it is possible to obtain large field transmission through a periodic structure at frequencies where the field is lossy in a finite temperature superconductor. The feat is accomplished by using thin superconducting layers. This makes the superconductor photonic crystal useful for transmitting signals over larger distances at higher temperature. Narrow transmission resonances due to surface plasmon effect are damped more quickly with increasing temperature than broader transmission bands. The temperature dependence is useful, particularly for developing optothermal sensors in terahertz and far infrared regimes.
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