

Abstract Submitted
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**One-dimensional photonic bandgaps
in a superconductor/dielectric superlattice** C.-J. WU¹, National University
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Chiao-Tung University — Photonic bandgaps for a superconducting/dielectric peri-
odic layered structure are illustrated from the transmittance spectrum that is calcu-
lated based on the Abeles theory for the stratified medium and the two-fluid model
for superconductors. The result shows a three-bandgap structure. The first band
and low frequency band gap are consistent with those predicted according to the
transfer matrix method along with the Bloch theorem. The second and third bands
as well as the bandgaps however can not be seen from the Bloch wave solution.
The low frequency gap is shown to decrease apparently with increasing the London
penetration depth, whereas the other two bandgaps are not sensitive to penetration
depth. We also discuss the bandgaps as a function of the incidence angle.

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