

Out-Of-Plane Scattering Loss Reduction With Annular Holes

M. B. Flynn, M. D. Settle, R. Wilson and T. F. Krauss,
School of Physics and Astronomy, University of St Andrews, North Haugh, St Andrews,
Fife KY16 9SS, Scotland. (Email: mbf@st-and.ac.uk)

Out-of-plane scattering within etched holes leads to photonic crystal device losses. We propose using annular holes to reduce diffraction losses (fig 1). Fig 2 compares losses of our scheme and standard holes calculated numerically. The bandstructure is not highly influenced by the introduction of the inner pillar.

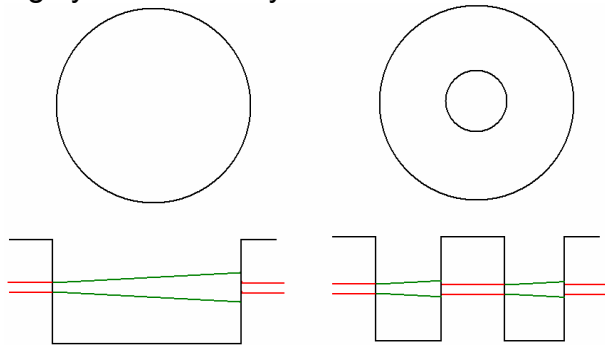


Fig 1. Schematic of losses from standard hole (left) and annular hole (right).

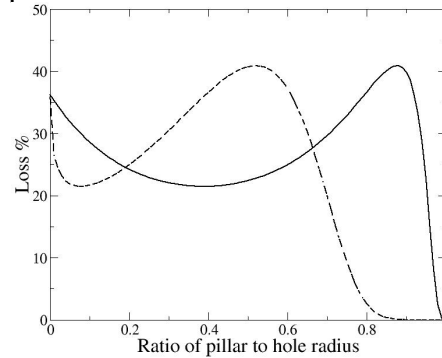


Fig 2. Loss of annular hole (solid) and hole with same filling factor (dashed).