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## On a waveguide with a pair distant windows

We consider Laplacian in a straight planar strip with Dirichlet boundary which has two Neumann “windows” of the same length the centers of which are  $2l$  apart, and study the asymptotic behaviour of the discrete spectrum as  $l \rightarrow \infty$ . It is shown that there are pairs of eigenvalues around each isolated eigenvalue of a single-window strip and their distances vanish exponentially in the limit  $l \rightarrow \infty$ . We derive an asymptotic expansion also in the case where a single window gives rise to a threshold resonance which the presence of the other window turns into a single isolated eigenvalue. In both cases the asymptotic behaviour of the associated eigenfunctions is also discussed.

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