



# Homogenization of Steklov spectral problems with indefinite density function in perforated domains

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The asymptotic behavior of second order self-adjoint elliptic Steklov eigenvalue problems with periodic rapidly oscillating coefficients and with indefinite (sign-changing) density function is investigated in periodically perforated domains. We prove that the spectrum of this problem is discrete and consists of two sequences, one tending to  $-\infty$  and another to  $+\infty$ . The limiting behavior of positive and negative eigencouples depends crucially on whether the average of the weight over the surface of the reference hole is positive, negative or equal to zero. By means of the two-scale convergence method, we investigate all three cases.

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