
HOMOGENISATION FOR THE ROBIN EIGENVALUE PROBLEM ON MANIFOLDS AND FLEXIBILITY OF OPTIMAL SCHRÖDINGER POTENTIALS

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We show that the spectrum of a Schrödinger eigenvalue problem on a Riemannian manifold M can be approached by that of a family of Robin eigenvalue problems posed on a sequence of domains in M . These domains take the form of M with many small balls removed from it: this is an example of a procedure known as homogenisation, which has recently found numerous applications in the investigation of spectral problems. As an application of our result, we prove a flexibility result for optimal Schrödinger potentials.