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Mathematics > Analysis of PDEs

Two-scale convergence of elliptic spectral problems with indefinite density function in perforated domains

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(Submitted on 20 Jun 2011 (v1), last revised 21 Aug 2012 (this version, v2))

Spectral asymptotics of linear periodic elliptic operators with indefinite (signchanging) density function is investigated in perforated domains with the twoscale convergence method. The limiting behavior of positive and negative eigencouples depends crucially on whether the average of the weight over the solid part is positive, negative or equal to zero. We prove concise homogenization results in all three cases.

Comments: 21 pages. arXiv admin note: substantial text overlap with arXiv:1106.3904 Subjects: Analysis of PDEs (math.AP); Mathematical Physics (mathph) MSC classes: 35B27, 35B40, 45C05 Cite as: arXiv:1106.3907 [math.AP] (or arXiv:1106.3907v2 [math.AP] for this version)

Submission history

From: Hermann Douanla [view email] [v1] Mon, 20 Jun 2011 13:59:25 GMT (18kb) [v2] Tue, 21 Aug 2012 21:46:52 GMT (18kb)

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