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Spectral asymptotic analysis of a neutronic diffusion problem. (Analyse asymptotique spectrale d'un problème de diffusion neutronique.) (French. Abridged English version)

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C. R. Acad. Sci., Paris, Sér. I 324, No. 8, 939-944 (1997).

Summary: We study the homogenization of an eigenvalue problem for neutronic diffusion in a periodic heterogeneous domain. Using a model with an ad hoc scaling of the coefficients (preserving physical intrinsic properties), we prove a convergence theorem justifying the method used in computations for cores of nuclear reactors. Finally, we indicate some possible generalizations.

MSC:

[35Q72](#) Other PDE from mechanics (MSC2000)

[82D75](#) Nuclear reactor theory; neutron transport

[35B27](#) Homogenization in context of PDEs; PDEs in media with periodic structure

Cited in **14** Documents

Keywords:

[homogenization of an eigenvalue problem for neutronic diffusion; periodic heterogeneous domain](#)

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