THE NEUMANN PROBLEM FOR THE LAPLACIAN OPERATOR IN OSCILLATING THIN DOMAINS

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Abstract

In this talk we discuss some results from [1, 2, 3] concerning to the asymptotic behavior of the solutions of a homogeneous Neumann problem for the Laplacian operator posed in thin domains with locally periodic structure on the boundary. Using Multiple Scale Method and Oscillating Test Functions from Homogenization Theory we obtain the homogenized equation proving weak convergence in H^1 Sobolev spaces. Next we introduce a notion of convergence in order to investigate the convergence of the resolvent operators defined by these problems.

Referências

[1] pereira, m. c. and silva, r. p. - *Error estimatives for a Neumann problem in highly oscillating thin domain*; Discrete and Contiuous Dynamical Systems, v. 33, (2013) 803-817.

[2] pereira, m. c. - *Parabolic problems in highly oscillating thin domains*; Annali di Matematica Pura ed Applicata v. 194 (2015) 1203-1244.

[3] pereira, m. c. and silva, r. p. - *Correctors for the Neumann problem in thin domains with locally periodic oscillatory structure*; Quarterly of Applied Mathematics 73 (2015) 537-552.

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