Asymptotic analysis for diffusion problems in thin periodic media

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In this talk, we shall present some homogenization results for a class of diffusion problems in thin periodic composite media, made up of two heterogeneous materials separated by imperfect interfaces. By using homogenization techniques adapted to thin periodic media and by considering different geometries for the microstructure and various forms for the functions describing the discontinuities involved in our microscopic problem, several models are derived at the macroscale [1-3]. Our setting might have applications in the analysis of a variety of filtering materials, such as soils or biological tissues, and, also, in the study of the electrical conduction or of the calcium dynamics in living tissues [4-6].

References

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