Homogenized Models for Reaction-Diffusion Processes in Composite Media with Imperfect Interfaces

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Various homogenized models for some reaction-diffusion processes arising in multi-component porous media with imperfect interfaces between their constituents are discussed. Our setting is relevant for modeling thermal conduction in composite media with interfacial thermal resistance or for analyzing calcium dynamics in living tissues. Also, our models can be used to investigate metabolic and regulatory processes taking place in biological cells. A realistic comparison with similar models obtained in the literature (see, e.g., [2]-[5]) is made, as well. The approach we follow is based on the use of the periodic unfolding method, introduced in [1].

References

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