

Homogenization of forward-backward parabolic equations

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Abstract

We study the homogenization of the equation

$$R(\varepsilon^{-1}x) \frac{\partial u_\varepsilon}{\partial t} - \Delta u_\varepsilon = f ,$$

where R is a periodic function which may vanish or change sign. Appropriate initial/final conditions are assigned for u_ε , depending on the sign of $R(\varepsilon^{-1}x)$. The main tool is a compactness result for sequences of functions which have bounded norms in the spaces associated to the problems.