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**Homogenization of a double porosity model in deformable media.** (English) Zbl 1288.35038  
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Summary: The article addresses the homogenization of a family of micro-models for the flow of a slightly compressible fluid in a poroelastic matrix containing periodically distributed poroelastic inclusions, with low permeabilities and with imperfect contact on the interface. The micro-models are based on Biot's system for consolidation processes in each phase, with interfacial barrier formulation. Using the two-scale convergence technique, it is shown that the derived system is a general model of that proposed by Aifantis, plus an extra memory term.

**MSC:**

- [35B27](#) Homogenization in context of PDEs; PDEs in media with periodic structure Cited in **2** Documents
- [74Q05](#) Homogenization in equilibrium problems of solid mechanics
- [76M50](#) Homogenization applied to problems in fluid mechanics

**Keywords:**

poroelasticity equations; two-scale convergence; periodically distributed poroelastic inclusions; Biot's system for consolidation processes; interfacial barrier formulation; memory term

**Full Text:** [arXiv](#) [EMIS](#)