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Transversely isotropic poroelasticity arising from thin isotropic layers. (English)

Zbl 0938.74018

Golden, Kenneth M. (ed.) et al., Mathematics of multiscale materials. Proceedings of the IMA workshops, Minneapolis, MN, USA 1995-1996. New York, NY: Springer. IMA Vol. Math. Appl. 99, 37-50 (1998).

From the summary: The paper discusses isotropic and anisotropic poroelastic media and establishes general formulas for the behavior of transversely isotropic poroelasticity arising from laminations of isotropic components. The Backus averaging method is shown to provide elementary means of constructing general formulas. The results for confined fluids are then compared with the more general Gassmann formulas that must be satisfied by any anisotropic poroelastic medium, and found to be in complete agreement.

For the entire collection see [[Zbl 0893.00045](#)].

MSC:

74E05 Inhomogeneity in solid mechanics
76S05 Flows in porous media; filtration; seepage
82B43 Percolation

Cited in **2** Documents

Keywords:

anisotropic poroelastic media; transversely isotropic poroelasticity; laminations of isotropic components; Backus averaging method; Gassmann formulas