

Pouya, Ahmad; Zaoui, André

Linearisation and homogenisation for viscoelastic materials. (Linéarisation et homogénéisation en viscoélasticité.) (French) [Zbl 0931.74016](#)

C. R. Acad. Sci., Paris, Sér. II, Fasc. b, Méc. Phys. Astron. 327, No. 4, 365-370 (1999).

Summary: Constitutive equations for nonlinear viscoelastic materials are first expressed by using a causal operator which relates a response function to any loading history. Then the corresponding tangent linear equations are derived through the Fréchet derivative of this operator. Thus we propose a step-by-step treatment of the overall behaviour of nonlinear non-ageing viscoelastic heterogeneous materials.

MSC:

[74D10](#) Nonlinear constitutive equations for materials with memory

[74Q05](#) Homogenization in equilibrium problems of solid mechanics

[74A20](#) Theory of constitutive functions in solid mechanics

Cited in **2** Documents

Keywords:

operator; response function; loading history; tangent linear equations; Fréchet derivative; nonlinear non-ageing viscoelastic heterogeneous materials

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