

1145-74-548

**G. A. Francfort\***, LAGA, Université Paris Nord, Avenue J.-B. Clément, 93430 Villetaneuse, France. *A two-dimensional labile aether arising out of homogenization.*

Homogenization in linear elliptic problems usually assumes coercivity of the accompanying Dirichlet form. In contrast with the scalar case, coercivity in linear elasticity is not ensured through mere (strong) ellipticity and a stronger notion of very strong ellipticity is usually assumed to hold.

Yet a homogenization process can still be performed, very strong ellipticity notwithstanding, for a class of two-phase mixtures giving rise to an overall behavior for which strict ellipticity can be lost.

That result is at the root of the construction of a two-dimensional medium which can propagate plane waves in a bounded domain with Dirichlet boundary conditions, a possibility which does not exist for the associated two-phase micro-structure at a fixed scale.

Equally striking is the realization that such a material blocks longitudinal waves in the direction of lamination, thereby acting as some kind of two-dimensional aether in the sense of e.g. Cauchy or Maxwell. (Received September 09, 2018)