

## Dominique Blanchard

### *Homogenization of a highly oscillating boundary in elasticity and junction with a plate*

This is joint work with A. Gaudiello and G. Griso.

We consider a set of elastic rods, with axis  $x_3$ ,  $\varepsilon$ -periodically distributed, and connected to the upper surface (in the plane  $(x_1, x_2)$ ) of an elastic plate whose thickness  $h_\varepsilon$  may vanish as  $\varepsilon$  tends to 0. Each rod has the same radius  $r_\varepsilon$ . We discuss a few critical cases, depending on the ratios  $r_\varepsilon/\varepsilon$  and  $h_\varepsilon/\varepsilon$ , when passing to the limit as  $\varepsilon$  tends to 0. In any case, the limit problem in the domain filled by the oscillating boundary (the rods) is a "continuum" of 1-d rods models (in the direction  $x_3$ ) in which the variables  $x_1$  and  $x_2$  are parameters. Then, on the surface  $x_3 = 0$ , we describe the junction between the rods and the 3-d plate (if  $h_\varepsilon = \text{constant}$ ) or a 2-d plate model (if  $h_\varepsilon$  tends to 0).