

A singularly perturbed transmission problem with non-ideal contact conditions

Paolo Musolino (IRMAR, Rennes)

We consider a singularly perturbed transmission problem arising in the computation of the effective thermal conductivity of a two-phase composite with imperfect thermal contact at the two-phase interface. The composite is obtained by introducing into an infinite homogeneous matrix a periodic set of inclusions of a different material. The radius of each inclusion is assumed to be proportional to a positive real parameter ϵ . Then we show that the solution of such a problem can be continued real analytically in the parameter ϵ around the value $\epsilon = 0$, in correspondence of which the inclusions collapse to points.

Based on joint work with Matteo Dalla Riva (Universidade de Aveiro).