

SEMINÁRIO DO GRUPO DE FÍSICA MATEMÁTICA

Dia 18 de Julho (quinta-feira), às 14h00, sala 6.2.33

From Steklov to Neumann via homogenisation

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Abstract: In the homogenisation of boundary value problems, there is often a critical regime where a phase transition can be observed in the limiting problem. This prompted Ciaronescu and Murat to call this phenomenon "A strange term coming from nowhere". For the Steklov problem, we show that the homogenised limit at the critical regime is a dynamical eigenvalue problem studied by J. von Below and G. François. A distinct feature of this problem is that the eigenvalue appears both in the interior problem, as in traditional eigenvalue problems, and on the boundary, as is the case for the Steklov problem. We will then see how we can recover universal bounds for the normalised Neumann eigenvalues in terms of bounds for the Steklov eigenvalues from the study of this dynamical problem.