



MAFIA - the seminar you can't refuse

Multipliers method for Spectral Theory

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Abstract: Originally arisen to understand characterizing properties connected with dispersive phenomena, in the last decades the multipliers method has been recognized as a useful tool in Spectral Theory, in particular in connection with proof of absence of point spectrum for both self-adjoint and non self-adjoint operators.

Starting from recovering very well known facts about the spectrum of the free Laplacian $H_0 = -\Delta$ in $L^2(\mathbb{R}^d)$, we will see the developments of the method reviewing some recent results concerning self-adjoint and non self-adjoint perturbations of this Hamiltonian in different settings, specifically both when the configuration space is the whole Euclidean space \mathbb{R}^d and when we restrict to domains with boundary. We will show how this technique allows to detect physically natural repulsive and smallness conditions on the potentials which guarantee the absence of eigenvalues. Some very recent results concerning Pauli and Dirac operators will be also presented.

The talk is based on joint works with L. Fanelli and D. Krejčířík.