

ÉCOLE D'ÉTÉ « MÉCANIQUE STATISTIQUE DE NON-ÉQUILIBRE »
01–29 JUILLET 2011

SUMMER SCHOOL ON “NON-EQUILIBRIUM STATISTICAL MECHANICS”
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Pauli-Fierz systems at zero and positive temperature

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We will review how one can through positive commutator methods obtain information about the structure of the spectrum of zero temperature Pauli-Fierz Hamiltonians and their associated positive temperature Liouvillians. We will focus on finite dimensional quantum systems interacting with a massless scalar field, and we will primarily discuss structure results valid for arbitrary coupling strength.

The three lectures will be organized as follows

- Lecture 1** : Construction of Hamiltonians and Liouvillians as self-adjoint operators and the Virial Theorem.
- Lecture 2** : Positive commutator estimates at zero temperature, and the structure of the spectrum of the Hamiltonian.
- Lecture 3** : Positive commutator estimates at positive temperature, and the structure of the spectrum of the Liouvillian.

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