

« ÉCOLE SUR LES MATHÉMATIQUES DE LA MÉCANIQUE STATISTIQUE HORS D'ÉQUILIBRE,
À L'OCCASION DU 60E ANNIVERSAIRE DE CLAUDE-ALAIN PILLET »
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"SCHOOL ON MATHEMATICS OF NON-EQUILIBRIUM STATISTICAL MECHANICS,
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Dynamics and return to equilibrium for infinite quantum gases in the mean-field approximation

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In this talk I will review several results about the well-posedness and long time behavior of the Hartree equation describing an infinite quantum gas with short range interactions, in the neighborhood of a given equilibrium state. Well-posedness is based on the use of a generalized relative entropy. The return to equilibrium, under a Penrose-type linear stability condition, follows from some Strichartz inequality proved together with Frank, Lieb and Seiringer. In the last part I will also mention the link with the Vlasov equation.

Works in collaboration with Julien Sabin (Paris-Sud).