

Dynamical Semigroups for Unbounded Repeated Harmonic Perturbation

Valentin A.Zagrebnov ¹

Institut de Mathématiques de Marseille - UMR 7373
CMI-AMU, Technopôle Château-Gombert
39, rue F. Joliot Curie, 13453 Marseille Cedex 13, France
and

Département de Mathématiques
Université d'Aix-Marseille - Luminy, Case 901
163 av.de Luminy, 13288 Marseille Cedex 09, France

ABSTRACT

We consider dynamical semigroups with unbounded Kossakowski-Lindblad-Davies generators. They are related to evolution of an open system with a tuned repeated harmonic perturbation. For this case the existence of a uniquely determined minimal trace-preserving strongly continuous dynamical semigroup on the density matrices space is established. The corresponding dual W^* -dynamical system is shown to be a unital quasi-free and completely positive maps on the CCR C^* -algebra. This semigroup preserves the gauge-invariant quasi-free normal states.

¹Valentin.Zagrebnov@univ-amu.fr