

Semi-classical analysis on nilpotent graded Lie groups

Clotilde Fermanian Kammerer
Université Paris Est - Créteil Val-de-Marne
clotilde.fermanian@u-pec.fr

The semi-classical approach aims at analyzing high-frequency phenomena. Via the correspondence principle, it links the quantum world to the classical one, by drawing a connection between the properties of the solution of a PDEs in relation and dynamical features of the symbol of the operator involved in the PDE. For this reason, the semi-classical approach proved to be a powerful tool in different contexts, control theory and spectral geometry for example. We will explain how to define semi-classical tools adapted to the gradation of a nilpotent graded Lie groups: semi-classical pseudodifferential operators, semi-classical measures and wave-packets. We will also discuss applications to spectral geometry on nilmanifolds.