ID de Contribution: **5**                                                        Type: **Non spécifié**

# Fredholm operators on graded Lie groups

*jeudi 31 août 2023 09:00 (45 minutes)*

A graded Lie algebra has a decomposition which is compatible with the
Lie bracket. This allows to define a differential calculus on the
corresponding group G in which an element of the Lie algebra can
have order higher than one when viewed as a left-invariant differential
operator.
This notion of order is implemented in the pseudodifferential calculi by
Fischer–Ruzhansky (for graded Lie groups) or van Erp–Yuncken (for
general filtered manifolds). They generalize operators belonging to
Hörmander's symbol classes. In this talk, I will discuss how global
pseudodifferential calculi on the Euclidean space, like the Shubin calculus,
can be generalized to graded Lie groups using appropriate groupoids.
In particular, we study when differential operators with polynomial
coefficients on G define Fredholm operators. This relates to a
Rockland type condition in terms of the representations on G.
This is joint work with Philipp Schmitt and Ryszard Nest.

**Orateur:**   ESKE, Ewert