Spectral Multiplier Theorems in L^p For Abstract Differential Operators

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For an operator generating a group on L^p spaces transference results give bounds on the Phillips functional calculus also known as spectral multiplier estimates. In this talk, we will consider specific group generators which are abstraction of first order differential operators and show similar spectral multiplier estimates assuming only that the group is bounded on L^2 rather than L^p. We will also show some R-bounded Hörmander calculus results. Firstly for the square of a perturbed Hodge-Dirac operator, by assuming an abstract Sobolev embedding property. Secondly for an abstract Harmonic oscillator obtained using Weyl pairs.