1014-81-963 **Alfonso Gracia-Saz*** (alfonso@math.berkeley.edu), 970 Evans Hall, Department of Mathematics., University of California at Berkeley, Berkeley, CA 94720, and **Cornelius Paufler**.

The symbol of a function of a pseudo-differential operator. Preliminary report.

In a previous work, we derived an expression "à la Feynman" for the symbol of a function of an operator. Given an operator $\widehat{A}$ in $L^2(\mathbb{R}^N)$ with symbol $A \in \mathcal{C}^\infty(\mathbb{R}^N)$, and a smooth function $f \in \mathcal{C}^\infty(\mathbb{R})$, we gave a combinatorial expression for the symbol B of the operator $\widehat{B} := f(\widehat{A})$. We have generalized the formula and we are studying applications to asymptotic calculations in quantum field theory. (Received September 26, 2005)