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*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)