Let H be a Hilbert space and let A be a selfadjoint operator on H. Let $f \colon \mathbb{R} \to \mathbb{C}$ be a C^2-function whose second derivative f'' is bounded. This talk is devoted to the question whether the operator

$$\Delta(f, A, K) = f(A + K) - f(A) - \frac{d}{dt}\big(f(A + tK)\big)_{|t=0}$$

belongs to the trace class class $S^1(H)$ whenever K is a selfadjoint Hilbert-Schmidt operator on H, and to the computation of the trace of $\Delta(f, A, K)$. (Joint work with C. Coine, A. Skripka, F. Sukochev.)