Chiang, Tzuu-Shuh; **Chow, Yunshyong**; **Lee, Yuh-Jia**
A formula for $E_W \exp(-2^{-1}a^2\|x+y\|_2^2)$. (English) Zbl 0641.60006
Proc. Am. Math. Soc. 100, 721-724 (1987).

We prove that for a complex number a with $\mathrm{Re}a^2 > -\pi^2/4$ and $x(\cdot) \in L^2[0,1]$,

$$E_W\{\exp(-2^{-1}a^2\|x+y\|_2^2)\} =$$

$$= (\cosh a)^- \exp[2^{-1}(\int_0^1 \int_0^1 k(s,t)x(s)x(t)dsdt - a^2 \int_0^1 x^2(t)dt)],$$

where W, the standard Wiener measure on $C[0,1]$, is the distribution of y and

$$k(s,t) = a^3(2\cosh a)^{-1}[\sinh(a(1-|s-t|)) - \sinh(a(1-|s+t|))].$$

MSC:

60B11 Probability theory on linear topological spaces

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Fourier expansion; Wiener measure

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