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A CHANGE OF SCALE FORMULA FOR WIENER INTEGRALS OF UNBOUNDED FUNCTIONS

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ABSTRACT. Cameron and Storvick discovered change of scale formulas for Wiener integrals of bounded functions in a Banach algebra S on classical Wiener space. Yoo and Skoug extended these results to abstract Wiener space for a more generalized Fresnel class $\mathcal{F}_{A_1,A_2}$ than the Fresnel class $\mathcal{F}(B)$ which corresponds to the Banach algebra S on classical Wiener space. In this paper we present a change of scale formula for Wiener integrals of functions on abstract Wiener space which need not be bounded or continuous.

1. Introduction. It has long been known that Wiener measure and Wiener measurability behave badly under the change of scale transformation [**3**] and under translations [**2**]. Cameron and Storvick [**5**] expressed the analytic Feynman integral for a rather large class of functionals as a limit of Wiener integrals. In doing so, they discovered nice change of scale formulas for Wiener integrals on classical Wiener space $(C_0[0,1], m_w)$ [**6**]. In [**20, 21, 22**], Yoo, Yoon and Skoug extended these results to classical Yeh-Wiener space and to an abstract Wiener space (H, B, ν). In particular, Yoo and Skoug [**20**] established a change of scale formula for Wiener integrals of functions in the Fresnel class $\mathcal{F}(B)$ on abstract Wiener space, and then they [**21**] developed this formula for a more generalized Fresnel class $\mathcal{F}_{A_1,A_2}$ than the Fresnel class $\mathcal{F}(B)$. But functions in $\mathcal{F}(B)$ and $\mathcal{F}_{A_1,A_2}$ are bounded.

In this paper we establish a change of scale formula for Wiener integrals of functions of the form

$$F(x) = G(x)\Psi((e_1, x)^{\sim}, \ldots, (e_n, x)^{\sim})$$

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