

## A BANACH ALGEBRA WITH ITS APPLICATIONS OVER PATHS OF BOUNDED VARIATION

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**ABSTRACT.** Let  $C[0, T]$  denote the space of continuous real-valued functions on  $[0, T]$ . In this paper we introduce two Banach algebras: one of them is defined on  $C[0, T]$  and the other is a space of equivalence classes of measures over paths of bounded variation on  $[0, T]$ . We establish an isometric isomorphism between them and evaluate analytic Feynman integrals of the functions in the Banach algebras, which play significant roles in the Feynman integration theories and quantum mechanics.

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