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Perturbative Renormalization of Composite Operators via Flow Equations II: Short Distance Expansion

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Abstract. We give a rigorous and very detailed derivation of the short distance expansion for a product of two arbitrary composite operators in the framework of the perturbative Euclidean massive Φ_4^4. The technically almost trivial proof rests on an extension of the differential flow equation method to Green functions with bilocal insertions, for which we also establish a set of generalized Zimmermann identities and Lowenstein rules.

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1. Introduction

Wilson's hypothesis [1] of the short distance expansion of products of composite operators plays a rather important role in a variety of contexts in field theory.

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