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Axioms for Euclidean Green's Functions II

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Abstract. We give new (necessary and) sufficient conditions for Euclidean Green's functions to have analytic continuations to a relativistic field theory. These results extend and correct a previous paper.

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I. Introduction

The passage to purely imaginary times has proven to be an extremely powerful tool both for the construction and for the discussion of relativistic quantum field theoretical models[1]. Obviously for such a procedure to make sense it is important to know how to go back again to real time.

In a previous paper "Axioms for Euclidean Green's functions" [12] (henceforth quoted as OS I) we claimed to have found necessary and sufficient conditions under which Euclidean Green's functions have analytic continuations whose boundary values define a unique set of Wightman distributions. These conditions

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[1] For verification of this assertion the reader should consult the 1973 Erice Lectures on Constructive Quantum Field Theory [19], where also references and historical accounts can be found.