Commun. Math. Phys. 123, 123–146 (1989)

Communications in Mathematical Physics

The ($N=1$) Supersymmetric Sine-Gordon Model in Two Dimensions. II

Marzio Cassandro[1], Francesco Nicolò[2], and Benedetto Scoppola[3]

[1] Dipartimento di Fisica, Università della Sapienza, C.N.R-G.N.S.M., C.N.R-G.N.F.M., Roma, Italy

[2] Dipartimento di Fisica, Università di Lecce, Lecce, Italy

[3] I.N.F.N., Sezione di Roma, Roma, Italy

Abstract. In this second paper the technical part of the results about the Supersymmetric $N=1$ massless Sine-Gordon field theory, at finite (space) volume, is given. The proof that the theory exists and is analytic in the coupling constant λ and that, at finite (space) volume, its Witten index is 1, is, therefore, completed.

Table of Contents

Introduction

This paper completes the previous one [hereafter called (I)] giving a reasonably detailed version of the proof of Theorem 1. We have chosen not to squeeze this proof in the appendix of (I) because it is another example (after those given in Gallavotti, Gallavotti and Nicolò [1] and Benfatto, Gallavotti and Nicolò [2]) of how the tree expansion allows us to use the Renormalization Group to provide very good estimates of the perturbative expansion of the field theories.