

Bethe-Salpeter Kernel and Short Distance Expansion in the Massive Gross-Neveu Model

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Abstract. The Bethe-Salpeter kernel is defined (non-perturbatively) for the weakly coupled massive Gross-Neveu model. Its large momentum properties are established. They are used to justify “subtracted” Bethe-Salpeter equations initially proposed (for φ_4^4) by K. Symanzik, and in turn to give non-perturbative proofs of the Wilson short distance expansion at first order and of 2-particle asymptotic completeness and related results.

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1. Introduction

1.1. Background. Recent non-perturbative works, which apply in particular to the weakly coupled massive Gross-Neveu model [GN, MW] in dimension 2, constructed in [FMRS, GK], have been made in two directions

- (i) 2-particle asymptotic completeness (AC) and related results on scattering

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