

After repeating the partial integration sufficient number of times we get the coupling constant for the momentum q :

$$f(q) = \frac{f}{1 - (N - 2)(1/2\pi) \log \Lambda/q} . \quad (11)$$

It is evident, that (11) is correct only for such q for which $f(q) \ll 1$.

Now let us calculate the correlation function:

$$G(R) = \langle \varphi(0) \varphi(R) \rangle \quad (12)$$