TOWARDS ASYMPTOTIC COMPLETENESS FOR THE MASSIVE TRANSLATIONALLY INVARIANT NELSON MODEL

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This talk concerns the problem of complete particle interpretation in a class of translationally invariant models describing a quantum mechanical particle ('electron') linearly coupled to the massive scalar field ('bosons'). Our approach takes the renormalized dispersion relation of the electron properly into account, yielding results valid for arbitrary coupling constants. These results include asymptotic completeness below the two-boson threshold in several models from this class, including the Nelson model in one-dimensional space and polaron-type models. (Joint work with J.S. Moller and M.G. Rasmussen).