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Bethe Ansatz for the 1D Hubbard model: from the finite lattice to the thermodynamic limit PEDRO GOLDBAUM, Princeton University — We prove that the norm of the Bethe Ansatz wavefunction for the one-dimensional Hubbard model does not vanish for all but finitely many values of the interaction U, concluding the proof that it does indeed give the correct ground state of the model. For the finitely many values where the wavefunction could in principle vanish, we propose a method to determine the genuine ground state. We also show the existence of a thermodynamic limit to the distribution function of the parameters of the Bethe Ansatz states, establishing the connection between our previous work on the existence of solution to the Bethe Ansatz equations and the exact solution of the model at half filling in the thermodynamic limit, by E. H. Lieb and F. Y. Wu.

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