Lehrstuhl für Analysis und Modellierung

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Conserved energies for the one dimensional Gross-Pitaevskii equation

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Abstract: In this talk I will consider the Cauchy problem for the one dimensional Gross-Pitaevskii equation, which can be viewed as the defocusing cubic nonlinear Schroedinger equation, but with nonzero boundary condition at infinity. I am going to search for the suitable solution space which is tailor-made for this problem and to show the global-in-time well-posedness result in it. To this end, a family of conserved energies will be constructed by use of the transmission coefficient, which is related to the Lax operator and hence is invariant under the GP flow. This is a joint work with Herbert Koch.