Multiple-pole solutions of the nonlinear Schrödinger equation

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We will start by a short resume on an operator theoretic approach to the Nonlinear Schrödinger equation, with the aim to motivate a solution formula which gives a unified access to the multiple-pole solutions. The main result is a complete asymptotic description of these solutions, which was so far only achieved for cases of low complexity by Olmedilla. After an overview on the geometric and algebraic ingredients of the proof, we will conclude by a discussion of cases of higher degeneracy and a comparison with the situation for the KdV equation.