Bethe states of quantum integrable models solved via the off-diagonal Bethe Ansatz

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Based on the inhomogeneous T-Q relation constructed via the off-diagonal Bethe Ansatz, a systematic method for retrieving the Bethe-type eigenstates of integrable models without obvious reference state is developed by employing certain orthogonal basis of the Hilbert space. With the XXZ spin torus model and the open XXX spin-1/2 chain as examples, we show that for a given inhomogeneous T-Q relation and the associated Bethe Ansatz equations, the constructed Bethe-type eigenstate has a well-defined homogeneous limit.