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Trigonometric Quantum Spectral Curve

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I will report on the construction of the Quantum Spectral Curve (QSC) for the eta-deformation of the AdS_5 x S^5 superstring. The Quantum Spectral Curve is a very simple set of equations and boundary conditions that describe the spectrum of the deformed string theory. It can be regarded as a trigonometrisation of the QSC that formed the ultimate simplification of the spectral problem of the N=4 super Yang-Mills theory dual to superstring theory on AdS_5 x S^5 through the AdS/CFT correspondence: in contrast to other constructed QSC's, the eta-deformed QSC is real periodic, i.e. defined on a cylinder. This causes the derivation of this QSC to be very different from all previously known cases with regards to its analytic properties. I will discuss this derivation while highlighting the new features of this QSC. In particular, I will touch upon spectral theory for periodic functions and illustrate how one derives the boundary conditions for this QSC.

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