Integrability in Condensed Matter Physics and Quantum Field Theory



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Talk: Double-scaling limits of rectangular fishnets

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Basso-Dixon integrals evaluate rectangular fishnets –Feynman graphs with massless scalar propagators which form a m × n rectangular grid –which arise in certain one-trace four-point correlators in the 'fishnet'limit of N = 4 SYM. Recently, Basso, Dixon, Kosower, Krajenbrink and Zhong explored the thermodynamical limit $m \rightarrow \infty$ with fixed aspect ratio n/m. They showed that the thermodynamical limit is not sensitive to the coordinates of the four operators unless two of the operators get close in a controlled way. In this talk, I consider the thermodynamics in the double scaling limit when two pairs of operators become close to light-like. In this double scaling limit, the rectangular fishnet depends on both coordinate cross ratios. All singular limits of the fishnet can be attained within the double scaling limit, including the null limit with the four points approaching the cusps of a null quadrangle.

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