

Wall-crossing of TBA equations and WKB periods for the higher order ODE

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We study the WKB periods for the $(r + 1)$ -th order ordinary differential equation (ODE) with polynomial potential which is obtained by the Nekrasov-Shatashvili limit of (A_r, A_N) Argyres-Douglas theory in Omega background. We derive the thermodynamic Bethe ansatz (TBA) equations governing the exact WKB periods, which provides a generalization of the ODE/IM correspondence. Varying the moduli space parameters of the potential, one observes the wall-crossing of the TBA equations. When the potential is monomimal type, we show the TBA equations obtained from the (A_2, A_2) and (A_2, A_3) -type ODE lead to the D_4 and E_6 -type TBA equations respectively. This talk is based on the work (hep-th/2104.13680) in collaboration with Katsushi Ito, Takayasu Kondo and Kohei Kuroda and the work in progress.

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