q-deformed Painlevé τ function and q-deformed conformal blocks

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We propose q-deformation of the Gamayun-Iorgov-Lisovyy formula for Painlevé τ function. Namely we propose formula for τ function for q-difference Painlevé equation corresponding to $A_7^{(1)\prime}$ surface (and $A_1^{(1)}$ symmetry) in Sakai classification.

In this formula τ function equals the series of q-Virasoro Whittaker conformal blocks (equivalently Nekrasov partition functions for pure $SU(2)$ 5d theory).

The talk is based on the joint work with A. Shchechkin [arXiv:1608.02566]