

1106-57-2781

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Recently Aganagic, Ekholm, Ng, and Vafa conjectured a relation between the augmentation variety in the large N limit of the colored HOMFLY and quantum A-polynomials. In this talk I will describe the methods used for direct confirmation of this conjecture for certain links.

It appears that colored knot polynomials possess an internal structure (we call it Z-expansion). Developing ideas of Garoufalidis we show explicitly that for the large families of links the corresponding colored HOMFLY polynomial for symmetric and anti-symmetric representations can be presented as a truncated sum of a certain q-hypergeometric series. The latter allows us to extend the formulas for the arbitrary symmetric representations and study the asymptotic of the colored HOMFLY polynomials for large symmetric representations.

In addition I will say a few words about the extension of Z-expansion beyond the symmetric representations for some simplest examples. Although for generic representation we no longer have truncated q-hypergeometric series we still have some interesting structure beyond the HOMFLY and superpolynomials. In particular, the introduction of the recently developed fourth grading in all existing examples can be presented as an elegant redefinition of the constituents of Z-expansion. (Received September 16, 2014)