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**Tian Yang\***, TAMU, college station, TX 77843. *Volume conjectures for Reshetikhin-Turaev and Turaev-Viro invariants.*

In a joint work with Qingtao Chen, we conjecture that at the root of unity  $\exp(2\pi i/r)$  instead of the usually considered root  $\exp(\pi i/r)$ , the Turaev- Viro and the Reshetikhin-Turaev invariants of a hyperbolic 3-manifold grow exponentially with growth rates respectively the hyperbolic and the complex volume of the manifold. This reveals a different asymptotic behavior of the relevant quantum invariants than that of Wittens invariants (that grow polynomially by the Asymptotic Expansion Conjecture), which may indicate a different geometric interpretation of the Reshetikhin-Turaev invariants than the  $SU(2)$  Chern-Simons gauge theory. Recent progress toward these conjectures will be summarized, including a joint work with Renaud Detcherry and Effie Kalfagianni. (Received June 27, 2017)