1163-57-344   **Ka Ho Wong*** (`daydreamkaho@math.tamu.edu`), Department of Mathematics, Texas A&M University, College Station, TX 77843, and **Tian Yang** (`tianyang@math.tamu.edu`), Department of Mathematics, Texas A&M University, College Station, TX 77843. *Relative Reshetikhin-Turaev invariants, hyperbolic cone metrics and discrete Fourier transforms.*

Recently, Tian Yang and I made a volume conjecture for the relative Reshetikhin-Turaev invariants of a closed oriented 3-manifold M with a colored framed link L inside it. We propose that their asymptotic behavior is related to the volume and the Chern-Simons invariant of the hyperbolic cone metric on the manifold with singular locus the link and cone angles determined by the coloring. In this talk, I will discuss how this conjecture can be understood as an interpolation between the Kashaev-Murakami-Murakami volume conjecture of the colored Jones polynomials and the Chen-Yang volume conjecture of the Reshetikhin-Turaev invariants. Besides, I will introduce the change-of-pair operation that changes a pair (M, L) without changing the complement $M\backslash L$ and discuss its meanings in quantum topology. Finally, I will summarize our recent progress on this conjecture. (Received September 03, 2020)