

# Hikami's observations on unified WRT invariants and false theta functions

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The object of this talk is a family of  $q$ -series originating from Habiro's work on the Witten-Reshetikhin-Turaev invariants. The  $q$ -series usually make sense only when  $q$  is a root of unity, but for some instances, it also determines a holomorphic function on the open unit disc. Such an example is Habiro's unified WRT invariant  $H(q)$  for the Poincare homology sphere. In 2007, Hikami observed its discontinuity at roots of unity. More precisely, the value of  $H(\zeta)$  at a root of unity is  $1/2$  times the limit value of  $H(q)$  as  $q$  tends towards  $\zeta$  radially within the unit disc. In this talk, we give an explanation of the appearance of the  $1/2$ -factor and generalize Hikami's observations by using Bailey's lemma and the theory of false theta functions.