

# Character Analogues of Ramanujan's identities

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B. C. Berndt and A. Zaharescu introduced the twisted divisor sums associated with the Dirichlet character while studying the Ramanujan's type identity involving finite trigonometric sums and doubly infinite series of Bessel functions. Later, S. Kim extended the definition of twisted divisor sums to twisted sums of divisor functions. In this paper, we derive identities associated with the aforementioned weighted divisor functions and the modified  $K$ -Bessel function in light of recent results obtained by D. Banerjee and B. Maji. Moreover, we provide a new expression for  $L(1, \chi)$  from which we establish the positivity of  $L(1, \chi)$  for any real primitive character  $\chi$ . This is a joint work with Prof. Debika Banerjee.