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**Jeremy Lovejoy\*** (lovejoy@math.berkeley.edu) and **Robert Osburn**. *The colored Jones polynomial of the odd double twist knots.*

Let  $K_{(m,p)}$  be the family of double twist knots where  $2m - 1$  and  $2p$  are non-zero integers denoting the number of half-twists in each region. We find two types of  $q$ -hypergeometric formulas for the colored Jones polynomial of  $K_{(m,p)}$ . The case  $m = 0$  recovers a result of Hikami for torus knots. The main tools are work of Takata and Walsh combined with the Bailey chain. As applications we find “quantum”  $q$ -series identities; that is, identities which hold only at roots of unity. If time permits, we will discuss the possibility of using our formulas to compute the tails of the colored Jones polynomials, leading to  $q$ -series identities in the classical sense. (Received September 16, 2019)