

Abstract

We show that for the certain limit of frequency, the wave equation of the massless scalar field in the background of the spacelike warped AdS_3 black hole can be written as the Casimir of the $SL(2, R)$ symmetry. Two set of $SL(2, R)$ generators are found which identify hidden $SL(2, R) \times SL(2, R)$ symmetry of the solution. This symmetry is only locally defined and is spontaneously broken to $U(1) \times U(1)$ by periodic identification of ϕ coordinate. By using the generator of this identification we can read the left and right temperatures (T_L, T_R) of the dual conformal field theory which are in complete agreement with the $WAdS/CFT$ conjecture. Under the above condition for the scalar wave frequency, absorption cross section of the scalar field is consistent with the two-point function of the dual CFT.