

1015-58-81

Klaus Kirsten* (klaus_kirsten@baylor.edu), Department of Mathematics, Baylor University, Waco, TX 76798, and **Paul Loya** and **Jinsung Park**. *ζ -regularized determinants on manifolds with conical singularities.*

As has been noticed recently (work by K. Kirsten, P. Loya and J. Park), ζ -functions associated with general self-adjoint extensions of Laplace-type operators over conical manifolds have, in general, countably many logarithmic branch cuts on the non-positive real axis and unusual locations of poles with arbitrarily large multiplicity. For example, at $s = 0$ the ζ -function might have a pole of order one as well as logarithmic singularities. As a consequence, the standard ζ -regularized determinant will in general not be well-defined. However, a natural prescription is to subtract the singularities and consider the determinant related to the resulting 'regularized' ζ -function. This is the procedure employed and closed answers are found showing explicitly the dependence of the determinants on the self-adjoint extensions considered. For cases when the ζ -function is analytic at $s = 0$, standard results are recovered. (Received January 26, 2006)