1012-58-56   **Paul Loya***, SUNY Binghamton, Dept. of Mathematics, Vestal Parkway East, Binghamton, NY 13850, and **Klaus Kirsten** and **Jinsung Park**. *Exotic expansions and pathological properties of zeta-functions on conic manifolds.*

In this talk I will discuss exotic phenomena and a complete classification of the meromorphic structure of zeta-functions associated to general self-adjoint extensions of Laplace-type operators over conic manifolds. We show that these zeta-functions have, in general, countably many logarithmic branch cuts on the nonpositive real axis and unusual locations of poles with arbitrarily large multiplicity. The corresponding heat kernel and resolvent trace expansions also exhibit exotic behaviors with logarithmic terms of arbitrary positive and negative multiplicity. We also give an explicit algebraic-combinatorial formula to compute these singularities and show by examples that such singularities occur even in simple situations. (Received August 30, 2005)