Title: THE ROLE OF CURVATURE AND NONLINEARITIES IN STA-
BILITY OF WAVES ON COMPACT SURFACES.

Abstract: This talk is concerned with wave equations on manifolds. The
presented geometric analysis allows for construction of surfaces comprised of
multiple regions that satisfy the requisite geometric optics conditions, and re-
gions without any geometric restrictions, but subjected to the influence of the
interior and/or boundary damping. It is shown that the conditions on the parts
of the surface without damping can be reformulated in terms of the Gaussian
curvature. The results also accommodate dissipative feedbacks that may grow
sub- or super-linearly at infinity, in which case the decay rates may depend on
the smoothness of the trajectories. The analysis exhibits a " continuous trade-
off " between the regularity of solutions, nonlinearity of the damping and the
rate of energy decay.