Evans M Harrell*, School of Math, Georgia Tech, Atlanta, GA 30332-0160, and Joachim Stubbe, Ahmad El Soufi and Saïd Ilias. *On sums of eigenvalues of elliptic operators on homogeneous spaces.*

Using a new variational technique for sums of eigenvalues, where orthogonalization is replaced by averaging, we derive sharp upper bounds on sums of eigenvalues for a wide category of elliptic operators on homogeneous spaces. Among the operators we can treat are Laplace-Beltrami-Schrödinger operators, the Witten Laplacian, and the operator of vibrations of inhomogeneous membranes. When the operator is defined on a domain with a boundary, Neumann conditions are imposed, in the weak sense. (Received January 27, 2014)