

**Meeting:** 1000, Albuquerque, New Mexico, SS 7A, Special Session on Spectral Geometry

1000-35-11            **Lotfi Hermi\*** ([hermi@math.arizona.edu](mailto:hermi@math.arizona.edu)), Department of Mathematics, University of Arizona, Tucson, AZ 85721. *Two new Weyl-type bounds for the fixed membrane.*

There is an analogy between inequalities involving the base frequency of a fixed membrane and those involving the (scaled) volume of a free membrane. We exploit this observation to prove two new upper bounds of Weyl-type (i.e., of polynomial growth) for the higher pure tones of a drum. Results are related to earlier works of Li-Yau, Lieb, Ashbaugh-Benguria, Laptev, and Kroger. (Received May 19, 2004)