Meeting: 999, Nashville, Tennessee, SS 7A, Special Session on Operator Theory on Function Spaces

999-47-35 **Morteza Seddighin*** (mseddigh@indiana.edu), Mathematics Department, Indaina University East, Richmond, IN 47374. *A Generalization of Kantrovich Inequality to two Operators.*

Given a positive operator T, let m and M be the smallest and largest eigenvalues of T respectively. It is proved by Kantrovich that the first antieigenvalue of T or cosT is equal to the ratio of the geometric mean of m and M to arithmetic mean of these two numbers. We will generalize the Kantrovich Inequality to interactive antieigenvalue cos(S,T) between two positive operators T and S. More precisely, will establish various upper and lower bounds for cos(S,T) in terms of smallest and largest eigenvalues of S and T. Will show that in fact one of these inequalities is sharper than Strang bound for cos(S,T). (Received July 16, 2004)