1086-47-188 **Omar Hirzallah** (o.hirzal@hu.edu.jo), Department of Mathematics, Hashemite University, Zarqa, Jordan, and **Fuad Kittaneh*** (fkitt@ju.edu.jo), Department of Mathematics, University of Jordan, Amman, Jordan. *Numerical radius inequalities for several operators.*

Let A, B, X, and $A_1, ..., A_{2n}$ be bounded linear operators on a complex Hilbert space. It is shown that

$$w\left(\sum_{k=1}^{2n-1} A_{k+1}^* X A_k + A_1^* X A_{2n}\right) \leq 2\left(\sum_{k=1}^{n} \|A_{2k-1}\|^2\right)^{1/2}\left(\sum_{k=1}^{n} \|A_{2k}\|^2\right)^{1/2} w(X)$$

and

$$w(AB \pm BA) \leq 2\sqrt{2}\,\|B\|\sqrt{w^2(A) - \frac{\left|\|\mathrm{Re}\,A\|^2 - \|\mathrm{Im}\,A\|^2\right|}{2}},$$

where $w(\cdot)$ and $\|\cdot\|$ are the numerical radius and the usual operator norm, respectively. These inequalities generalize and refine some earlier results of Fong and Holbrook. Some applications of our results are given. (Received August 05, 2012)