1116-47-1163   **Caixing Gu*** (`cgu@calpoly.edu`), Department of Mathematics, California Polytechnic State University, San Luis Obispo, CA 93407. *Common reducing subspaces of several weighted shifts with operator weights.* Preliminary report.

We characterize common reducing subspaces of several weighted shifts with operator weights. As applications, we study the common reducing subspaces of the multiplication operators by powers of coordinate functions on Hilbert spaces of holomorphic functions in several variables. The identification of reducing subspaces also leads to structure theorems for the commutants of von Neumann algebras generated by these multiplication operators. This general approach applies to the weighted Hardy spaces, weighted Bergman spaces, Drury-Arveson space and Dirichlet spaces of unit ball or polydisk uniformly. (Received September 17, 2015)