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**Alex Kasman\*** ([kasmana@cofc.edu](mailto:kasmana@cofc.edu)), Charleston, SC 29464. *On factoring an operator using elements of its kernel.*

Just as one can factor a polynomial given some of its roots, a well-known theorem allows the factorization of an ordinary differential operator acting on scalar functions given a set of linearly independent functions in its kernel. This talk presents a generalization to other types of operators. In particular, in place of the differential operator  $\partial$  acting on a ring of functions we consider the more general situation of an endomorphism  $\mathcal{D}$  acting on a unital associative algebra. It turns out that a simple assumption about the way  $\mathcal{D}$  composes with multiplication operators is sufficient for an analogous result that factors operators written in terms of its powers. The talk will conclude with examples that illustrate the use of this result in three different contexts. (Received January 19, 2016)