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Edward D. Hanson* (hanson@math.wisc.edu), Department of Mathematics, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706-1388. *A characterization of Leonard pairs using the parameters $\{a_i\}_{i=0}^d$.*

Let V denote a vector space with finite positive dimension. We consider an ordered pair of linear transformations $A : V \rightarrow V$ and $A^* : V \rightarrow V$ that satisfy (i) and (ii) below:

1. There exists a basis for V with respect to which the matrix representing A is irreducible tridiagonal and the matrix representing A^* is diagonal.
2. There exists a basis for V with respect to which the matrix representing A^* is irreducible tridiagonal and the matrix representing A is diagonal.

We call such a pair a *Leonard pair* on V . Arlene Pascasio recently obtained a characterization of the Q -polynomial distance-regular graphs using the intersection numbers a_i . In this talk, we extend her results to a linear algebraic level and obtain a characterization of Leonard pairs. Pascasio's argument appears to rely on the underlying combinatorial assumptions, so we take a different approach that is algebraic in nature. (Received September 22, 2011)