1150-15-423 **Edward Hanson*** (edhanson@math.wisc.edu), Department of Mathematics, University of Wisconsin, 480 Lincoln Dr., Madison, WI 53706-1388. *How to recognize a Leonard pair.*

Leonard pairs are pairs of linear transformations that act on each other's eigenspaces in an irreducible tridiagonal fashion. They are related to the Askey scheme of orthogonal polynomials, distance-regular graphs, and the representation theory of Lie algebras. In the literature, there are some parameters that are used to describe Leonard pairs called the intersection numbers $\{a_i\}$, $\{b_i\}$, $\{c_i\}$, and the dual eigenvalues $\{\theta_i^*\}$. In this talk, we will provide two characterizations of Leonard pairs. For the first characterization, the focus is on the $\{a_i\}$ and $\{\theta_i^*\}$. For the second characterization, the focus is on the $\{b_i\}$, $\{c_i\}$, and $\{\theta_i^*\}$. (Received July 14, 2019)