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Jim Lawrence* (lawrence@gmu.edu), Department of Mathematical Sciences, George Mason University, 4400 University Drive, Fairfax, VA 22030-4444. *Matrices associated with polar dual pairs of polytopes*. Preliminary report.

Given a pair of polar dual polytopes P , having vertices u_i , and P^o , having vertices v_j , we consider the matrix $A = (a_{i,j})$, where $a_{i,j} = u_i \cdot v_j$. The matrix determines P and P^o up to linear equivalence. We describe some properties of the matrix, consider some polytope classes obtained by restricting the matrices considered, and pose some questions. (Received September 21, 2011)