Polyhedral products, duality properties, and Cohen-Macaulay complexes

The polyhedral product is a functorial construction that assigns to each simplicial complex $K$ on $n$ vertices, and to each pair of topological spaces, $(X,A)$, a certain subspace, $Z_K(X,A)$, of the cartesian product of $n$ copies of $X$. I will discuss some of the relationships between the duality properties of these spaces and the Cohen-Macaulay property of the original simplicial complex. This is based on joint work with Graham Denham and Sergey Yuzvinsky.