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Bernadette Boyle* (boyleb7@sacredheart.edu), Department of Mathematics, Sacred Heart University, 5151 Park Avenue, Fairfield, CT 06825. *The Unimodality of Pure O-Sequences of Type Two in Four Variables.*

A pure O-sequence is a vector which counts the monomials, in each degree, of a pure monomial order ideal; alternatively, it is the Hilbert function of a level artinian monomial algebra. It has long been known that pure O-sequences are not necessarily unimodal. However, it is interesting to ask if there are restrictions that we can place on such an algebra which force the Hilbert function to be unimodal. In this talk we will focus on monomial level algebras in four variables with type two, and show that their Hilbert functions are always unimodal. (Received September 21, 2012)