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The information in the coefficients of a Coxeter polynomial

Let A be a finite dimensional algebra over an algebraically closed field, assume that A has finite global dimension. Let $p(t) = a_0 + a_1t + a_2t^2 + \cdots + a_nt^n$ be the Coxeter polynomial of A . If A is connected then $a_0 = 1 = a_n$, and Happel has shown that a_1 is the alternating sum of the dimension of the Hochschild cohomology groups of A . We build a large family of algebras where $a_2 = 1$ happens exactly when A is derived equivalent to a hereditary algebra of type A_n .