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The following question will be discussed.

Given a finite number of homogeneous quadratic polynomials in  $n$  variables that share no common nontrivial real roots, does there exist a possibly different collection of such polynomials that now share no common nontrivial complex roots, so that the sum of the squares of the polynomials in each collection results in the identical homogeneous quartic polynomial?

The question pertains to the existence of coercive estimates for the variational Neumann problem for higher order elliptic operators with constant coefficients. (Received February 13, 2006)