

## ON SUFFICIENT CONDITIONS FOR A POLYNOMIAL TO BE SIGN-INDEPENDENTLY HYPERBOLIC OR TO HAVE REAL SEPARATED ZEROS

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*Abstract.* The well-known Hutchinson's theorem states that if  $P$  be a polynomial with positive coefficients,  $P(x) = \sum_{k=0}^n a_k x^k$ , and  $\frac{a_{k-1}^2}{a_k - 2a_k} \geq 4$  for  $k = 2, 3, \dots, n$ , then all the zeros of  $P$  are real. We obtain sufficient conditions for a real polynomial to be a sign-independently hyperbolic polynomial or to have real separated roots in the style of Hutchinson's theorem.

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