

1057-34-26

Kwang C. Shin* (kshin@westga.edu), Department of Mathematics, University of West Georgia, Carrollton, GA 30118. *All cubic and quartic polynomials P for which $f'' + P(z)f = 0$ has a solution with infinitely many real zeros and at most finitely many non-real zeros.* Preliminary report.

In 1883 Steven Bank posed the question of classifying polynomials P for which $f'' + P(z)f = 0$ has a solution that has only real zeros and infinitely many of them (Problem 2.71 of Hayman's Collection). In this talk, we completely characterize all cubic and quartic polynomials P for which the equation has a solution that has infinitely many real zeros and at most finitely many non-real zeros.

Titchmarsh, Gundersen, Shin, and Eremenko *et. al.* have found some classes of such polynomials P . (Received December 02, 2009)