

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-30-616 **Michael J. Miller*** (millermj@mail.lemoyne.edu), Department of Mathematics, Le Moyne College, Syracuse, NY 13214. *On a refinement of Sendov's conjecture.*

Let β be a complex number of modulus at most 1. For those polynomials P with a root at β and all roots in the unit disk, define $r(\beta)$ to be the greatest possible distance between β and the closest root of the derivative P' . In this notation, Sendov's conjecture claims that $r(\beta) \leq 1$.

Assuming without loss of generality that $0 \leq \beta \leq 1$, we have previously conjectured that $r(\beta) \leq 1 - (3/10)\beta(1 - \beta)$, and proved this stronger conjecture for a number of special cases (see abstract #993-30-522). We prove here that this inequality holds for a new special case: whenever all roots of the polynomial P lie on a line. (Received September 24, 2004)