

1014-53-1652      **Michael D Bolt\*** ([mbolt@calvin.edu](mailto:mbolt@calvin.edu)), Calvin College, 3201 Burton Ave. SE, Grand Rapids, MI 49546. *Extremal properties of logarithmic spirals.*

The family of loxodromic arcs are shown to be the maximizers of inversive arclength in the complex plane. Previously, these arcs were known to be extremals. The first result says that at any loxodromic arc, the inversive arclength functional is convex with respect to a non-trivial perturbation that fixes the circle elements at the endpoints. The second result says that among curves with monotone curvature that connect fixed circle elements, the loxodromic arcs uniquely maximize inversive arclength. These results confirm a conjecture made by Liebmann in 1923. (Received September 28, 2005)