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**Albert Baernstein II\*** (al@math.wustl.edu), **Richard S. Laugesen** (laugesen@math.uiuc.edu) and **Igor E. Pritsker** (igor@math.okstate.edu). *Inequalities for moments of equilibrium distributions of compact sets in the plane.*

Let  $K$  be a compact subset of the plane with logarithmic capacity 1 and equilibrium distribution denoted by  $\mu_K$ . For functions  $\phi$ , the integral  $\int_K \phi(z) d\mu_K(z)$  is called the  $\phi$ -moment of  $K$ . Let  $L$  be a line segment of length 4. In this paper, we show that when  $K$  and  $\phi$  satisfy certain assumptions then the  $\phi$ -moments of  $K$  are at most equal to those of  $L$ , and when  $K$  and  $\phi$  satisfy other assumptions then the  $\phi$ -moments of  $K$  are at least equal to those of  $L$ . A key role in the proof is played by the theory of "s\*-functions." (Received January 16, 2007)