

Abstract Submitted  
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**Span efficiency of wings at moderate Reynolds number** GEOFREY SPEDDING, University of Southern California, JOHN MCARTHUR, Aerovironment Inc. — Classical aerodynamic models of lift and induced drag of finite wings work well for chord-based Reynolds numbers of  $10^6$  or more, where the thin, viscous boundary layers are mostly attached. Recent interest in the design of practical micro-air vehicles and in their natural counterparts (birds, bats, larger insects) brings us into a Reynolds number regime ( $10^4 - 10^5$ ) where the aerodynamic performance is strongly affected by the possibility of separation of the laminar boundary layer, and then its possible re-attachment. Now, corrections to the inviscid formulations of induced drag become substantial and difficult to estimate. Inconsistencies in the literature further confuse the issue. Here, we clarify the definitions of span efficiency and test the applicability of one-parameter correction models for moderate Reynolds numbers. Suggestions for model improvements will follow.

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